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THE FEMALE URETHRA

A CLINICAL AND PATHOLOGIC STUDY

CHAIRMAN'S ADDRESS *

A. I. FOLSOM, M.D.

DALLAS, TEXAS

The size and anatomic structure of the female urethra is so simple, as compared with the much longer and much more complex male urethra, that it has been carelessly assigned a much less important place in urologic thinking than it really deserves.

Modern textbooks treat the diseases of this structure so lightly that one is led to believe the female urethra remarkably free from pathologic deviations. So much has this attitude become general that I am convinced that many sufferers are allowed to run along for years crying for help and having their real condition repeatedly run over in the daily search of the bladder and upper urinary tract for a satisfactory explanation of the patient's symptoms.

Bladder irritation, frequency, burning and, at times, pain are symptoms that are the common denominator of many urologic conditions. Urologists have preached the doctrine far and near, until nearly all are now aware of the fact that the group of symptoms mentioned does not mean gravel or cystitis. But, in our eagerness to show that stone in the kidney, renal tuberculosis, pyelitis, stricture of the ureter and the like are frequently called to attention by the previously named symptom complex, we have failed to include inflammation of the female urethra as another pathologic entity that frequently is called to attention by this group of symptoms which have been classed as bladder irritation.

Only a few years ago I was in one of the large urologic clinics of the country and saw presented a woman of 45 whose sole symptoms were frequency, burning and the like. A careful cystoscopy had been done and a normal bladder reported. Bilateral pyelograms had been done and both were normal: cultures from both kidneys were negative. The urologist, throwing up his hands, said "What are you going to say? Everything negative, and yet she has the irritation." After the clinic, in a private conversation with the urologist, I suggested that the woman's urethra might be causing the trouble. A survey of the urethra showed an old granular condition of the proximal half of the urethra, with several small polypoid masses of tissue lying just within the grasp of the sphincter. The patient had had a chronic inflammation of the urethra for years, and this had finally resulted in the gross overgrowth of tissue which was producing the discomfort she had been complaining of for years.

I am thoroughly convinced from my clinical experience that the female urethra produces a great many recurring cycles of bladder distress. Patients come complaining of attacks of frequency, burning and varying types of pain connected with the urinary act. They have been told that they have a nervous bladder (whatever that is); that their trouble is in their head and not in the other extremity. They have been told to get interested in something and forget their bladder. But, alas, these poor women, try as they would, could not transfer their thoughts or attention to some distant province when their bladders continued to burn with unquenchable fire.

This chronic inflammation of the female urethra may have had an unrecognized beginning and a more or less innocent development, but, once well matured, it is capable of calling itself to the attention of its victims in very insistent and in no uncertain tones, and, in some cases, I have seen it produce the most severe symptoms, causing the patient untold pain and discomfort.

Two cases stand out in my group and are worth recording.

CASE 1.—Mrs. M., aged 30, a widow of two years after a marriage lasting three years, came to me complaining of bladder discomfort that had started soon after marriage and had continued with little interruptions until the present. During the first few years the attacks were intermittent and characterized by a frequent desire to void, with little or no pain. The attacks gradually grew more frequent and more severe, and, for a year prior to consulting me, she had been almost a constant sufferer from an insistent desire to void, coupled with a pain in the region of the urethra, which had almost made a nervous wreck of her. She was tormented day and night, getting her only comfort from prolonged sitz baths or some form of opiates. Otherwise her history was completely negative. She had always been well and strong save for this bladder irritation.

A physical examination revealed nothing of interest. A roentgenogram was negative. The urine was normal. A pelvic examination showed that the uterus and adnexa were normal. Cystoscopic examination showed a tight urethra, 24 F. being difficult to introduce. The bladder and ureteral openings were normal.

Withdrawing the McCarthy cysto-urethroscope into the urethra, I found the entire proximal part of the urethra filled with small polypoid masses of tissue, some sessile and some pedunculated and moving in the irrigating fluid, as the fronds of a papilloma.

CASE 2.—The history of patient 2 was almost a duplicate of that of patient 1, except that she had suffered so intensely for six months that she had resorted to morphine definitely for relief.

The urethra was so tight that only a number 18 F. could be gotten into the urethra. Under a general anesthetic, a number 18 cysto-urethroscope was passed, and a similar condition to that in case 1 was found.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

Both of these patients were relieved promptly and ultimately cured by attention to the inflammatory process in the urethra.

I have seen them in all stages of this condition from these two very severe cases on down to a mild intermittent irritation.

A large number of these cases have had their origin in some previous attack of gonorrheal urethritis, and

Fig. 1.—Cystoscopic views, showing actual existing masses and their arrangement in a clinical case.

yet I am sure that a large number are not gonorrheal in origin and are due to some other organism reaching the urethra from the vulva and vagina, or perhaps are metastatic from some distant focus.

Two things stand out in the pathology of this condition. First is a narrowing of the urethral lumen,

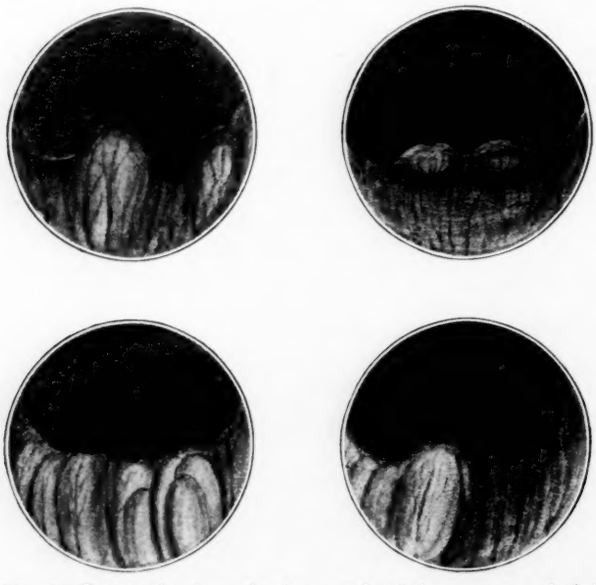

Fig. 2.—Cystoscopic views showing actual existing masses and their arrangement in a clinical case.

resulting from the cicatricial contraction of the periurethral tissue. These cases show varying degrees of stricture. The normal caliber of the female urethra is about 30 to 32 F., and I have frequently seen this reduced to 20 and 22 F. and in some cases even to 18 F., and in one woman, aged 55, a complete retention had occurred requiring the use of a filiform guide, with a La Fort follower, in order to draw off the retained urine. Urologists have had their attention so focused on stricture of the male urethra that they have almost lost sight of the fact that exactly the same condition can and, in many cases, does exist in the women who complain of urinary irritation. The stricture is usually limited to the distal half or two thirds of the urethral tube. In such cases the urethra can be distinctly felt as a hard fibrosed cord in the anterior vaginal wall.

The second pathologic entity seen in these chronically inflamed female urethras are certain well defined changes in the mucous membrane, covering the proximal half of the urethra and particularly on that part covering the sphincter. Here may be seen an intense engorgement of the mucosa, an early stage in the process, or definite granulation tissue just as is seen in the

Fig. 3.—Papillary mass snared from female urethra, showing well developed gland structure with large amount of colloid-like retained secretion.

posterior urethra of the male. This granular urethritis may, and frequently does, extend over the sphincter and into the adjacent bladder mucosa in a collaret effect around the internal vesicle opening. These small groups of granules can be definitely seen by any of the modern close view cysto-urethroscopes, or better by the McCarthy panendoscope.

In addition may be seen small groups of pinhead size cysts, grouped frequently in little lines running longitudinally along the fold of the urethral mucosa. In some of these the contents of the little cysts seems to be of a brownish or golden color, giving to this area a little yellowish tinge.

In still other cases this chronic inflammatory process has progressed one step further and well defined polypoid masses are seen hanging from the circumference of the sphincter. These vary in size and shape rather

widely, some being sessile and merely a well circumscribed bulging area, others being well defined and almost pedunculated, while others take on the characteristics of a papillary frond that may be seen moving or floating in the irrigating fluid as it flows into the bladder. In nearly all these masses a distinct vascular

Fig. 4.—Papillary mass snared from female urethra, showing well developed gland acinus in center of mass.

loop may be seen as the central structure. So definitely has my attention been called to these easily seen vascular loops that I have classified another group of cases as a prepolypoid group. In these cases the mucosa over the sphincter seems to be more or less loose and definitely hypertrophied, with here and there a well defined vascular loop plainly visible as a framework on which, I feel sure, if left alone, a polypoid mass would be developed. This process seems to be limited to the posterior portion of the urethra and is distinctly separate from the urethral caruncle seen at the meatus.

This area in the posterior portion of the urethra may be seen during a quiet stage of its life history and then simply the changes that I have detailed are seen; but at other times this area may be seen during an acute inflammatory flare up, and then the picture has an added interest, for then the whole surface is intensely red and angry and small punctate spots may be seen from which seem to be extruded small strands or shreds of mucus and pus. And, during these acute flare ups, the bladder mucosa may be diffusely inflamed or it may be inflamed in discrete patchy areas (areal cystitis).

In looking for these changes in the region of the sphincter, one caution has to be observed in order not to overlook some of the less well developed types of change. Of course in the well developed polypoid mass, almost any kind of survey will show them, but in those cases in which the process is in an early stage and the masses are not so well defined, one may, by looking only as the cysto-urethroscope is being withdrawn, fail to see them, for the simple reason that the tug of the mucosa on the shaft of the cystoscope tends to smooth out the mucosa, and in this way these smaller masses may be obscured. If, however, after the window has been withdrawn into the lumen of the urethra, the cystoscope is then gently pushed back into the bladder, one will at once see the little mass take form and be plainly visible.

Patience and care will show many things in this small area that have been overlooked, and in many instances these little changes will be the sole cause of the patient's discomfort.

The capacity of an irritation in the female urethra to be transferred by a sympathetic nerve reflex to some distant location was first called to attention by Civiale in 1850, but from that time until recently urologists have been blind to this very important fact.

It has long been known that an inflammatory lesion in the posterior urethra of the male can cause all kinds of referred pain in the groins, back, legs and even feet, but we seem slow to recognize the same condition when produced by a similar inflammatory lesion in the female urethra.

The first one to be called definitely to my mind, several years ago, was a pain located in the groin and running up along the ureter. A pain of this nature is not a severe colicky pain, but a dull aching pain that gives the patient concern, because she attributes it to

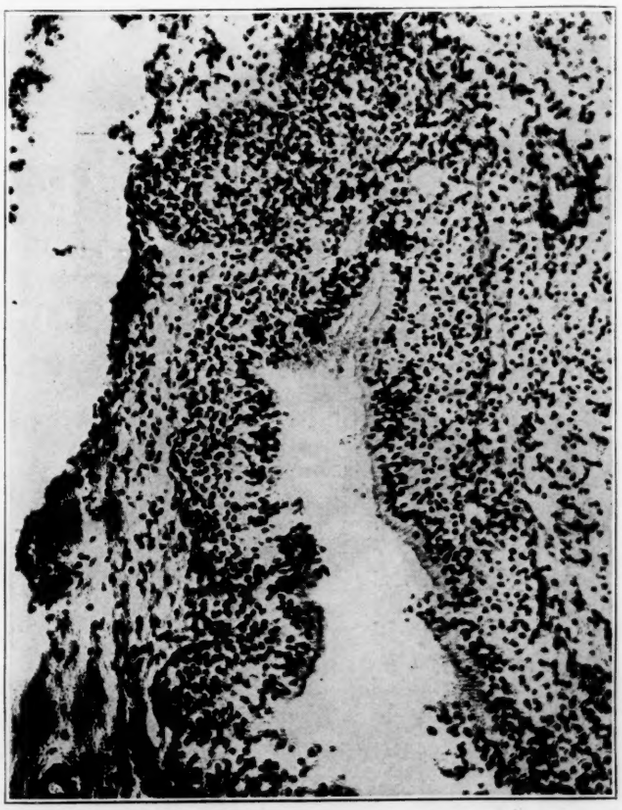

Fig. 5.—High power view of gland acinus shown in figure 4.

the ovaries or tubes, and in some cases the pain and bladder irritation have led to a pelvic exploration and various pelvic operations, following which the patient continues to have the same trouble, unchanged by the operation.

Such a case I have under observation now:

A woman, aged 41, married, a multipara, for fifteen years has been complaining of an irritation of the bladder, amounting at times to a most distressing dysuria; associated with this is a pain running up into both loins, never a colic, but always some pain. She has had three distinct surgical procedures, for

Fig. 6.—Anatomic specimen: section of female urethra near bladder, showing very rich glandular area; glands scattered out into muscular layers of urethra.

the sole purpose of relieving the pain in the abdomen and the bladder irritation. One was an appendectomy; one a fixation of the uterus, and finally the uterus was removed, but with no result. Two years ago she was East and consulted a distinguished urologist and gynecologist, who diagnosed her case as double stricture of the ureters. These were dilated over a period of six months, with no relief.

I was consulted soon after this and in making an independent examination failed to find any narrowing of the ureters, either by a wax bulb or by a pyelo-ureterogram. The only pathologic condition found was that of a gross chronic inflammatory urethra, with several polypoid masses in the proximal part of the tube. The bladder was normal, and cultures from both kidneys were negative. The lumen of the urethra was reduced to a 22 F., which, in my judgment is a definite stricture.

I directed my efforts at the relief of the urethral condition and she began immediately to get better and is now almost entirely relieved of her bladder irritation and the pain in her groins and side as well.

I am thoroughly convinced that many cases of so-called stricture of the ureter have been relieved, not by the dilation of the ureter, but rather by the associated but unconscious dilatation of the urethra that was the result of the passage of the cystoscope through the urethra.

So much have I been impressed by the frequency of these pains in this condition that I have adopted as my own the view that any atypical pain in and around the female pelvis that has not a definite and connected history that points definitely to what it is should be considered a possible urethral reflex.

The urologist is not the only one who has overlooked this tiny but important field. The gynecologist has been guilty as well, for in many cases of bladder irritation he has hastily accused, convicted and condemned to operation at 8 o'clock in the morning a perfectly innocent uterus, tube or ovary.

How often have I listened to that oft told tale, "Doctor so and so said my uterus was pressing on my bladder and causing my bladder distress, but after the operation I have continued to have my same trouble." These cases many times prove to be a chronic inflammatory urethra, with or without stricture or gross proliferation, and proper attention to this lesion promptly relieves the sufferer.

So many times have I seen this sequence of events that I am firmly convinced that many pelvic operations would be saved were the gynecologist to learn that the female urethra is a very important anatomic structure, capable of producing not only the annoying symptoms of cystitis but also pain and discomfort in and around the female pelvis.

I think that I can truthfully say that in a long experience it has been the rare exception that I have ever been able to explain finally this annoying symptom complex cystitis on the basis of pelvic pathologic changes connected with the uterus, tubes or ovaries.

Fig. 7.—Anatomic specimen: section of female urethra, showing several glands with retained calcified secretion.

The uterus is designed to tilt forward and, to a small degree, press on the expanding bladder. Nothing could be more normal than for a uterus to press on the bladder as it rises full of urine into the anterior portion of the pelvis; but so far as producing any irritation of the bladder, I seriously question it. Granted that an anteflexed uterus, which by the way is a rare deflection,

does, to a greater degree, so press the fundus into the roof and back wall of the bladder, it will not produce any irritation by reason of the position, for these walls so pressed on are the silent areas of the bladder and would never produce irritation unless associated with an intrinsic inflammatory process in the wall itself.

Fig. 8.—Anatomic specimen, same as figure 10, showing one well developed gland acinus with periacinous inflammatory infiltration.

Or, again, in considering the gonorrheal disease of the uterus, tubes and ovaries, how frequently do we see these acutely inflamed pelves giving rise to bladder irritation? In my experience very rarely, except as it can be proved to be due to a direct extension of the process into the urethra, and hence could not be attributed to the pelvic pathologic changes per se.

On the other hand, one often sees in chronic pelvic inflammatory disease an irritation of the bladder which persists to plague the patient long after the pelvis has been cleared of its inflammatory débris, persists because it was and still is due not to the pelvic pathologic condition but to a local inflammatory lesion, located in the insignificant female urethra.

Another error that gynecologists frequently make is in promising a relief of bladder irritation by the repair of a perineal laceration, with varying degrees of cystocele. I am convinced that it is only the occasional cystocele that produces bladder irritation; many of them have no more to do with the bladder irritation that the patient is suffering from than the color of her eyes and hair.

Many times have I had these women come to me after such repair operations who had been promised relief from this one and only complaint, bladder irritation, and who are still complaining of the affliction. It is surprising to me to see how many of them have a urethra actually overflowing with these little inflammatory polyps. These patients have been uniformally relieved by attendance to the chronic inflammatory urethra.

So much for the clinical facts observed and recorded now by many clinicians, such as Pugh and Stevens of this country and Mr. Frank Kidd of London. The question that has for a number of years held my interest as well as the interest of many other clinicians is: What is responsible for the localization in this particular area of the urinary tract of an infection, and why should it be so definitely perpetuated? Mucous membranes do not persist in inflammatory reaction unless there happen to be gland structures in the area, or for other reasons, such as sinuses, in which an infection can be, and is, harbored for a long period.

Kelly and Skene and others have emphasized the ducts in the anterior urethra and have passed over as quite unimportant the glands in the remainder of the urethra as mere crypts and the like. Luys, in his book on cystoscopy, divides the urethra into two distinct anatomic parts: "the posterior part, which adjoins the neck of the bladder and is entirely muscular in structure; the anterior part, which contains an abundance of glandular orifices." The modern textbooks of anatomy and histology pass over the subject with only the most cursory observations and, so far, a rather careful search of the literature fails to reveal any very definite descriptions; yet for several years I have been convinced that there must be some more definite and

Fig. 9.—Anatomic specimen: section through female urethra near bladder, showing three well developed gland acini.

important glands in this area of the female urethra, feeling that if this were true we then would have a ready and plausible explanation for these long observed clinical facts.

It was with a desire to clear up this question that I began a study, from a histologic and pathologic standpoint, of this area, and, while the study is not much

more than definitely begun, I have been quite gratified with my results so far.

I have found, first of all, that the papillary masses themselves seem to have many rudimentary glandlike structures and some well developed gland structures, which leads me to suggest that the masses themselves are really adenomatous papillary structures, not mucous cysts or simply fibrous polyps, as has been suggested.

Second, I have found in many urethras a very definite group of tubular glands, located around and opening into the posterior portion of the female urethra. These have varied in size and number, and, in an occasional specimen, only a few gland tubules have been found. I have found that these glands are infected and show all the various changes that have been found in the prostatic ducts and tubules of the male. They are frequently quite widely dilated by the retained

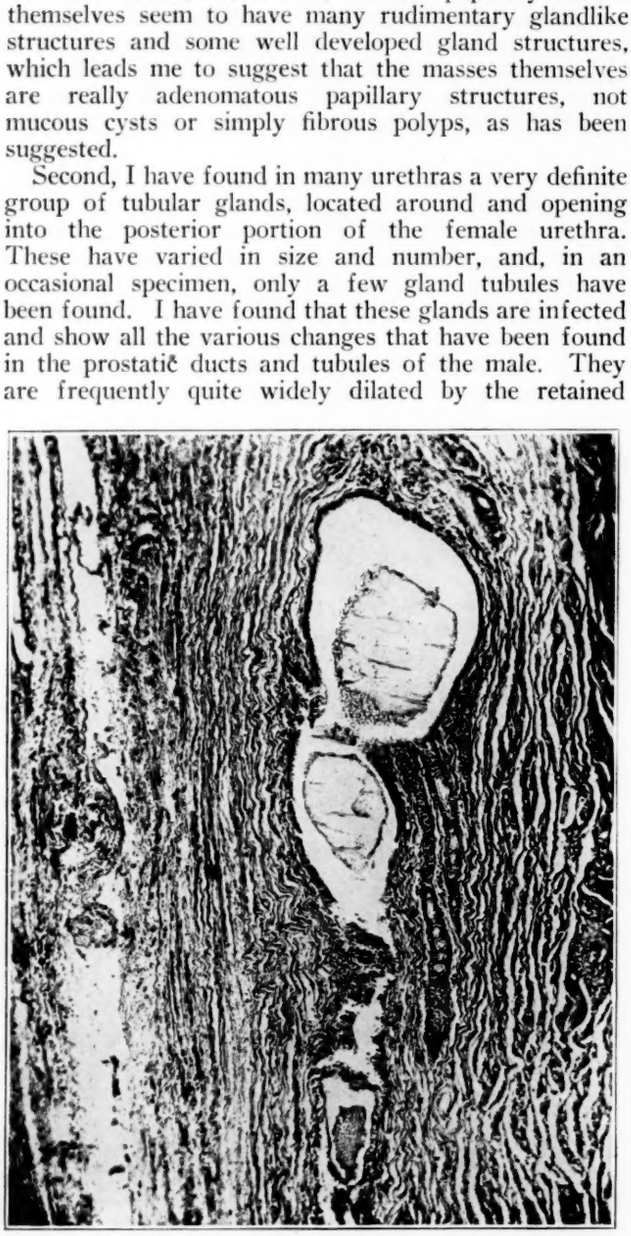

Fig. 10.—Anatomic specimen same as figure 8, showing gland with three well developed branches.

secretion into large cystic areas. In some cases these have gone on to the stage of actual calcification, as seen in figure 7.

Having found these gland structures and having found them showing evidence of an inflammatory reaction, in some cases certainly existing for many years, I should like to submit for approval or rejection the tentative conclusion that these infected glands, so situated around the posterior portion of the female urethra, are the real cause of the various pathologic conditions seen in this structure. As a result of the long continued inflammatory changes, together with the edema of the mucous membrane of this portion of the urethra, stretching of the inelastic tissues occurs with the formation of these papillary structures. This origin would seem to classify these masses as inflammatory structures rather than neoplastic structures.

1717 Pacific Avenue.

ABSTRACT OF DISCUSSION

DR. WILLIAM E. STEVENS, San Francisco: Dr. Folsom's paper impresses on one's memory the frequency of lesions of the female urethra. This organ has too often been looked on, until recently, merely as an avenue of approach to the bladder and upper urinary tract, and its lesions have been overlooked as etiologic factors in urinary disturbances in women and girls. About eight years ago, in presenting a paper before this society, I called attention to the frequency of strictures of the female urethra. One of our prominent urologists, who evidently did not believe much in strictures, remarked that strictures of the female urethra were on a par with Hunner's stricture of the ureter; that the number in his opinion was much overestimated. Fortunately, urologists as well as gynecologists are now paying more attention to this condition. The urethra in the female contains numerous glands. Infection of these glands and their ducts is often responsible for the persistence of urethritis. While some of the patients are cured by conservative treatment, such as dilation of the urethra, instillations and applications, many of them require destruction of the gland before the urethritis will disappear. I saw a patient sent in some time ago with a diagnosis of either tumor of the bladder or cyst of the ovary. She had passed very little urine during the previous week and comparatively none for forty-eight hours. The tumor disappeared following catheterization of a distended bladder, which was due to a tight stricture of the urethra.

DR. H. DAWSON FURNISS, New York: Dr. Folsom has done a fine piece of work in bringing before the section the importance of the urethra in disturbances of the female urogenital tract. I do not believe the gynecologists are entirely to blame. I think the majority of urinary tract disturbances are due to the trouble in the urethra itself. One sees these patients with all kinds of disturbances, especially frequency of urination. They urinate every few minutes all day, and sleep all night without voiding. There is another type that I call urethral crisis. Without any rhyme or reason, these patients will have attacks of pain lasting for a few hours or a few days, and one cannot find the cause. The men who were trained in Kelly's hospital I think have been well trained in the use of the air cystoscope. I think the Kelly cystoscope is the best aid in clearing up these cases. Of the water cystoscopes I think the Gerringer best. Even with both of these I think one misses many of the small urethral diverticula, in the investigation. I recall one case in which only after a prolonged search was I able to find the opening. In three instances I was able to show up the diverticulum by injecting a radiopaque substance into the urethra, inserting a dental film into the vagina, and roentgenographing. We have had altogether about six cases of these urethral diverticula. I would caution against attempting to dissect these out from the vaginal side, for one is likely to damage not only the urethra but also the vesical sphincter. I think they should be opened up with an electrical knife and when they are contracted down to a small sinus they can be closed by a plastic procedure. Dr. Folsom spoke of the glands in the female urethra. In the last issue of the *Zeitschrift für Urologie* there is an article in which these glands in the posterior urethra are said to be similar to those found in the prostate; that they are analogues of those. I think one should pay more attention to the urethra in the female, and if one does so one will have far greater success.

DR. A. E. BOTHE, Philadelphia: To me the majority of the photomicrographs presented do not show glandular structures. I think they are typical transitional epithelium inclusions secondary to an inflammatory process. It has been shown that inflammatory changes in the bladder may result in transitional epithelium inclusions or "epithelial rests," which may undergo centralized liquefaction necrosis and result in a gland-appearing structure. These have been called by some observers von Brunn's glands. Morse's publication in the *American Journal of Pathology* in January, 1928, shows conclusively that glandular structures are not normally found in the urinary tract above the trigon of the bladder, but that the glandular appearing lesions are formed by degeneration of the central cells of the transitional epithelial cell nests. I feel that Dr. Folsom is dealing with the same conditions in the posterior urethra. These structures are epithelial inclusions with or without centralized

liquefaction necrosis and the entity might be called a urethritis cystica.

DR. BRANSFORD LEWIS, St. Louis: This is a distinct step in advance in urology, which will assist in bringing to its own the importance of pathologic changes of the urethra in women. Such changes have led to many cases clinically encountered in which there is a perpetuation of the symptoms Dr. Folsom has mentioned. I have been impressed for fifteen years or more with the importance of the urethra as the leading feature in the pathologic changes of urinary irritations that are so frequently ascribed to the upper urinary tract. Dr. Folsom has led me in his pathology and clear demonstration of the glands that stand beween the clinical evidences of stricture of the urethra and its chronic irritation. If his ideas are established, and I am willing to admit them at present, I think it represents a distinct step in the pathology as well as the mode of treatment of these cases.

DR. ROBERT GUTIERREZ, New York: I believe Dr. Folsom's paper is a distinct contribution to urology. I recall two cases in which frequency and complete retention of urine were the principal symptoms in cases in which no neurologic lesion or any other pathologic change could be detected and in which on cystoscopy and complete urologic examination, including bilateral pyelograms, no other pathologic condition was found than marked elevation of the floor of the bladder neck, which in my mind corresponds with the hypertrophy of the Albarran subcervical group of glands described in the male. In other words, we are seeing in the female what the French school described so many years ago in the male, the so-called prostatism without prostate. In looking up the literature I have found these glands plainly described by Albarran in his textbook on tumors of the bladder and we have also found the presence of these glands in histologic sections of cadavers. To my mind these glands of the female urethra and bladder neck are similar to those described by him in the male. They extend into the trigon underlying the submucosa and in some instances they develop, to the extent of forming a true microscopic adenoma producing mechanical obstruction to urination. This hypertrophy of Albarran's glands should not be confused with contracture or fibrosis of the bladder neck or with the formation of polyp cyst and edema so commonly observed. These glands have been described by many authors after Albarran, and, as infection of the Cowper glands and Littré glands of the male urethra are called cowperitis and littritis, I believe that these Albarran glands of the female urethra constitute a definite entity clinically and pathologically, and as this condition is rather common, it should be better known in the future as albarranitis or hypertrophy of the Albarran glands in the female.

DR. J. DELLINGER BARNEY, Boston: While not a gynecologist, I have seen many of these cases that have been referred for this condition with diagnoses varying from stone in the bladder, cystitis and so on. Examination often shows nothing very definite on first sight. I think we often lose sight of the fact that the cystoscope may be a little tight on introduction, and put it down as not of importance; but I believe a careful study of these cases will enable us to lay more stress on the tightness of the urethra to instrumentation. Most of the cases I have seen have been in rather elderly women, and in addition to the glandular element we have the condition of fibrosis, and I know of nothing better to name it than a senile change. The uterus is atrophic, the introitus is atrophic, and the urethra shares in this. While the condition is distressing, I have found that it can be relieved by dilation and overdilation, using an anesthetic if necessary. I think, while they are not curable in one sitting, they can be relieved by persistent dilation, together with applications of silver nitrate, and possibly of the electric cautery. I think the subject has been much neglected, and we are indebted to Dr. Folsom for bringing our attention to it.

DR. CLYDE W. COLLINGS, New York: The treatment of these lesions of the female urethra particularly interests me. It is always surprising to find a very small lesion giving rise to so many symptoms. With the cysto-urethroscope, small exuberant granulations are often seen in the urethra. I have been successful in treating these lesions with surgical diathermy. A stiff, blunt tipped electrode is used, touching the little granulations very lightly. They burst much as a puffball would; in a few weeks, accompanied by dilations, the patient's suffering is relieved.

DR. WILLIAM P. HERBST, Minneapolis: One of the most important phases of this subject is a consideration of the causes of unsatisfactory response to treatment. This lack of response is due to one of two reasons: first, that the chronic inflammation in the wall of the urethra does not subside with the usual local procedures such as dilation and instillations with or without clearing up other foci; second, the presence of coexisting pathologic changes, such as panmural inflammation of the bladder wall, called Hunner's ulcer because of his original descriptive contributions, and inflammation of the same type involving the lower end of the ureters. I wish to suggest that these cases of chronic urethritis, which do not respond to the usual local treatment, be carefully investigated as to focal infection and lesions in the bladder and ureteral walls.

DR. B. S. BARRINGER, New York: I remember many cases similar to those described in which with the patient under a general anesthetic a urologist of my acquaintance dilated the urethra and then with the fingers of the right hand, especially the index finger, he manipulated the parts vigorously. I always wondered why the patients did not have incontinence afterward, but, surprising to say, they would not. They were cured by one simple manual dilation with the index finger.

DR. G. H. HANSMANN, Iowa City: It is unnecessary to have glands in the urethra to explain the type of pathologic change presented. The condition of pyelitis et ureteritis cystica, which results from the submerged epithelium occurring in very low grade inflammations of the extrarenal urinary system, is well known. I can match even the sections which appear most like glands in sections presented with sections of this condition. Epithelium will change that much under pathologic conditions. I wish to ask whether glands have been overlooked in the pelvis of the kidney, the ureter, and even in the bladder. The same type of pathologic condition occurs throughout the extrarenal urinary system.

DR. A. I. FOLSOM, Dallas Texas: I have never been able to get Dr. Bothe to say whether these are or are not glands. He has always been indefinite in his expressions. I think it will take a lot of time and work to determine whether these are really glands or whether they are epithelial inclusions. I have confidence in the pathologist who has been associated with me in this and he says they are glands, and so have several others who have seen the material in the Scientific Exhibit. The thing hooks up clinically, and the abstract things will have to be decided by some one else. The clinical facts are correlated. I have always been puzzled as to why so many more girl babies have pyelitis than boys, as have most of us. If these are glands I think there is a satisfactory explanation of this fact, because the female urethra is so small, with its open funnel end bathed with feces and urine in its short course, that the infection, if the glands are there, can easily get into them, and after the glands are infected they tend to remain infected. I have noticed, and rather imagine that many would corroborate this from a clinical point of view, that many of these children are presented with a perfectly classic case of pyelitis. On cystoscopy I have found the bladder urine loaded with pus. I have catheterized both kidneys, and the urine has been completely negative, with no pus at all. At first I did not know what it meant, but the next day the child was better. What I now think happened was that the child did not have an acute pyelitis but an acute posterior urethritis, an acute inflammatory reaction in these little ducts or glands, and the passage of the cystoscope promoted drainage so that the child got better clinically. This looks to me as if it might be the explanation.

Legislative or Restrictive Measures.—I think that I express the opinion of the practitioners of this country when I say that the medical profession should be spared from further legislative or restrictive measures. We already have our narcotic acts, prohibition legislation, rules and regulations for quarantine and endless laws to control us in the conduct of our professional activities. We do not need more. Nor should the medical profession be further standardized or rubber-stamped. An educated profession will render efficient service if permitted to exercise its skill and individuality.—Abt, I. A.: The American Academy of Pediatrics: Its Aim and Its Scope, *Am. J. Dis. Child.* **42**:875 (Oct., pt. 1) 1931.

SQUAMOUS CELL CARCINOMA OF THE ORBIT

A PROBABLE METAMORPHOSIS OF AN ADAMANTINOMA

CHAIRMAN'S ADDRESS *

GEORGE FRANCIS SUKER, M.D.
CHICAGO

The adamantinoma as such is not a very rare tumor. It occurs most frequently in the upper jaw or antrum. It is either a solid or a cystic growth. Many times it has a structure resembling a gland—then designated adenoma

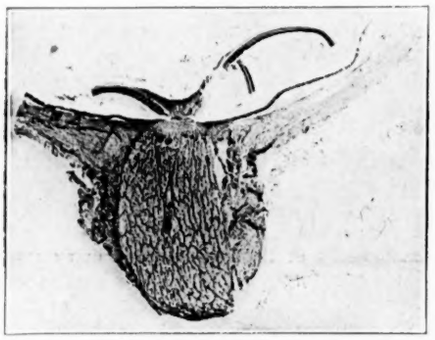

Fig. 1.—Moderate papilledema and edematous nerve.

adamantinum or epithelioma adamantinum. It develops from the paradental epithelial remains of the enamel organ which springs from the adamantoblast. Any tumor arising from this blast is called an adamantoblastoma.

Adamantinomas frequently develop from old roots or snags and are relatively benign, unless they undergo metamorphologic changes. Their structure is a fibrillary spindle cell network with many proliferations from these cells. Often the cellular structure is not unlike a carcinoma or even a gland.

A close inspection of these epithelial cells shows a close relationship to the early embryonal enamel cell, in its very incipient stages of development. The outer

Fig. 2.—Remaining portion of orbital optic nerve, extremely edematous.

cells are highly cylindric, the next layers are polygonal flat epithelial cells. Eventually these polygonal cells may undergo cystic degeneration and by confluence form larger cysts. These cysts are then usually surrounded only by the cylindric cells. In such instances the picture closely resembles glandular structure.

The more unusual type is the solid form such as is the case herein reported, and is so interpreted by the pathologist, Prof. Richard Jaffe of the Cook County Hospital, Chicago.

* Read before the Section on Ophthalmology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

From the upper jaw or antrum they can extend into the nose, the adjacent sinuses or orbit. The oral surgeon sees them quite frequently; not so the ophthalmic surgeon. Occasionally these adamantinomas undergo metamorphologic changes which eventuate into a carcinoma of the squamous type. Such a change has likely happened in this particular tumor, and it has therefore been so designated and interpreted.

The question arises, How did this tumor reach the orbit? The patient had no dental roots or snags. Though the right antrum was cloudy, at the time of operation no perforation was found; but it was explored, revealing only a thickened mucous membrane but no tumor mass. However, just back of the sphenoid fissure and optic canal the roentgenogram shows a suspicious shadow, which may be a tumor mass. Did it develop just back of the sphenoidal fissure and then enter the orbit by way of the sphenoidal fissure or vice versa? Then, too, as to the ontogeny of primary orbital tumors, especially the mixed type, I am inclined to the

Fig. 3.—Section of optic nerve showing the enormous edema.

view that they all may originate from an anlage; a like view is held by Kundrat.

These bizarre metamorphologic adamantinomas develop most often in later life with no sexual predominance, are of rather slow growth, and frequently infiltrate and cause early metastases, local or distant.

The patient whose case is to be reported has had no dental pathologic changes and many teeth were removed years ago. Roentgenograms at present do not reveal any dental or mandibular tumor, hence it is reasonably concluded that in this particular instance the tumor originated from an anlage. Now how did this anlage get into the orbit or into the position posterior to the sphenoidal fissure, if this shadow cited is a tumor mass? No definite course of embryologic development can be given. The conjecture is that during the development of the denture, antrum and orbit, an ameloblast cell or cells missed their correct route and underwent early metamorphologic changes, developing themselves into a squamous cell carcinoma.

The microscopic examination of this tumor made by Prof. Richard Jaffe was reported as follows:

Embedded with a dense fibrillar connective tissue are small branched and anastomosing alveoli which are composed of

spindle shaped and oval cells with a scanty cytoplasm and oval nuclei rich in chromatin. In some places, the cells fuse together into larger multinucleated protoplasmic masses, the nuclei of which are lighter than those of the single cells. An occasional alveolus shows a central area of loosening, the cells becoming separated by unstained spaces and assuming an irregular stellate shape. There are a moderate number of mitotic figures with short and clumsy chromosomes. The stroma contains slender trabeculae of osteoid tissue arranged about small central spiculae of osteoid tissue. Diagnosis, squamous cell carcinoma.

Fig. 4.—Reconstructed nerve (figs. 1 and 2).

This report is apparently in full accord with the statement of Ewing that epithelial cells of these tumors exhibit all variations in form between stratified squamous epithelioma and specialized adult ameloblast. Ewing further remarks that in spite of the benign structure of these cells the prognosis is unfavorable, an opinion shared by Jaffe.

Fig. 5.—General structure of tumor invading bone; slightly reduced from a photomicrograph with a magnification of 145 diameters.

A careful search of the literature fails to cite any instance comparable to this particular case. Mention is made of such tumors invading the orbit from the antrum but not invading the orbit by way of an anlage supposedly situated as this one. None of the ophthalmic pathologies cite a case, though they casually mention the term adamantinoma. Not even in Sattler's "Bösartigen Geschwülste des Auges" is this type of tumor discussed. Sir Henry Parsons makes no mention of this type of tumor. Kaufman in his "Spezielle Pathologische Anatomie" gives a good description of adamantinoma but makes no mention of a case involving the orbit as a supposedly primary tumor. Erdheim [1] speaks of an adamantinoma of the stalk of the hypophysis which underwent metamorphologic changes, producing the picture of a squamous carcinoma. James Ewing [2] shows a photomicrograph of an epidermoid carcinoma which eventuated from an adamantinoma and in structure is almost a counterpart of the tumor herein cited. No similar case is found in the survey of the first and second editions of the Surgeon General's Index Catalogue or in the *Zentralblatt für die gesamte Ophthalmologie*.

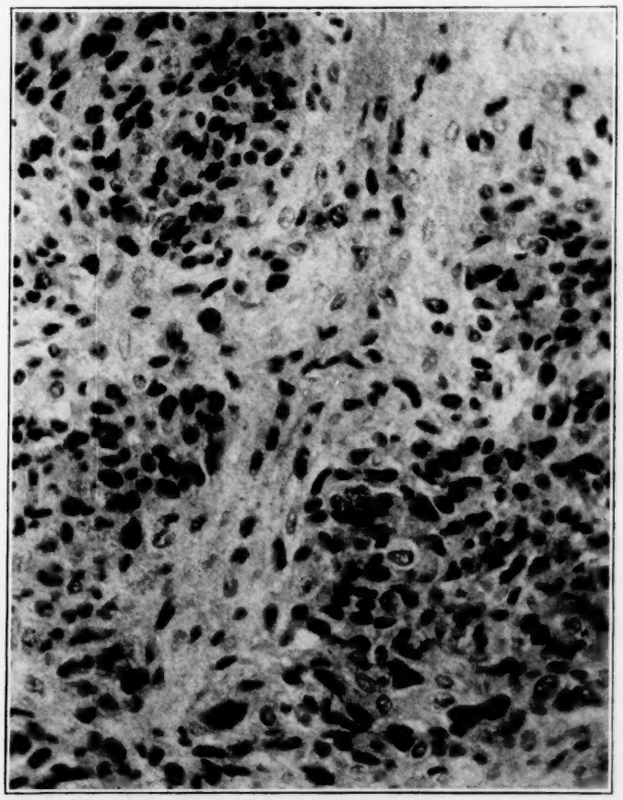

Fig. 6.—Structure of tumor cells and alveoli; slightly reduced from a photomicrograph with a magnification of 325 diameters.

It is not so improbable that there have been similar or like cases, but they may have been mistaken for other types of tumor because they had osteoid changes or degeneration; or, as they often resemble adenomas, they may have been taken for cylindromas arising from the orbital lacrimal gland, or for fibrosarcomas, with bony changes, or even for epulis.

At all events, there is some justification in assuming that this case is the first of its kind reported. If it is not, then I have failed in finding the specific reference in the literature, or have not, even with the aid of Dr. Jaffe, correctly interpreted the tumor, and hence a correction is earnestly solicited on my part.

1. Erdheim: Sitzungsb. d. k. Akad. d. Wissensch. **113.**
2. Ewing, James: Neoplastic Diseases, p. 755.

The nearest description of a tumor resembling this one is by Fleming and Parsons.[3] They describe a myeloid sarcoma. In some particulars this tumor has the structure of a scirrhous carcinoma, which latter is not infrequently some type of endothelioma of the orbit.

The following is a brief history of the case:

Mrs. J. W., aged 60, white, whose history had been uneventful until two years before, when a goiter operation was performed, developed a moderate right sided partial facial paralysis (peripheral Bell's palsy), with no lagophthalmos, Feb. 5, 1931, from which she had nicely recovered. The blood pressure was 170. The kidney and heart were normal. A week later right exophthalmos, rather proptosis, developed and vision in the right eye failed rapidly to faint fingers at a foot. The patient had no pain at any time. March 5 there was a proptosis of 10 mm. The globe was immobile with no conjunctiva or edema of the lid. The globe was not the least compressible into the orbit; the external eye was normal; the

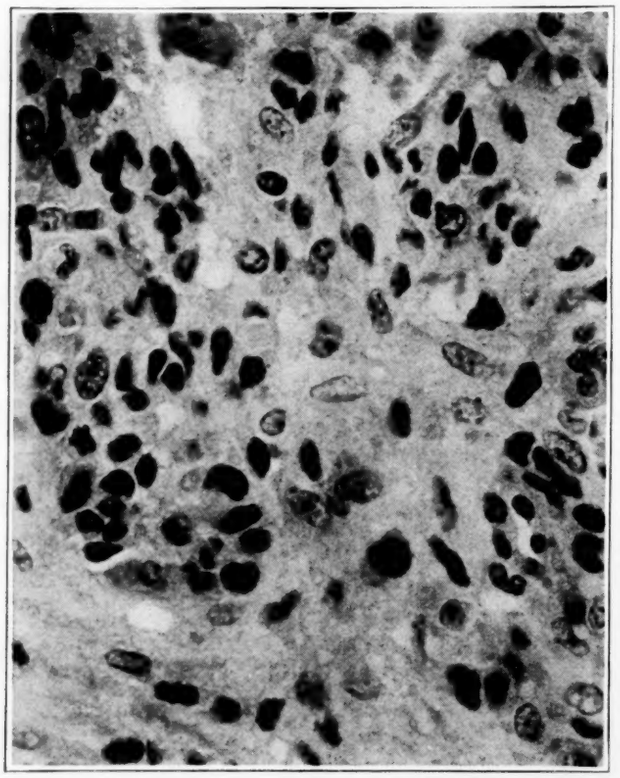

Fig. 7.—Tumor cells and stroma; slightly reduced from a photomicrograph with a magnification of 675 diameters.

iris was practically immobile, 3 mm. high; the fundus was normal except for a papilledema of about 6 diopters; the fundus vessels were engorged. A serologic examination was negative. No mental or brain symptoms or physical conditions were observed. Roentgenograms of the sinuses were negative except for a slight shadow in the right maxillary antrum, but a suspicious mass was observed back of the orbit. Many teeth had been removed several years before. A roentgenogram showed no impacted molars, only a few roots.

A tentative diagnosis of orbital tumor, probably a sarcoma or fibroma, was made. Exploratory operation was advised to guide further procedure.

As the proptosis was marked, by tenotomy of the external rectus and opening into the Tenon's capsule a rather flat, dense mass was felt along the outer orbital wall, extending to the apex and swinging along the inner wall. A section of this mass was taken for a frozen section, and it proved to be a carcinoma of a peculiar type (Dr. Brown, Grant Hospital Laboratory). Under general anesthesia, a conservative enucleation was made. Then with the cautery knife the orbit was exenterated, both lids being saved in their fulness. The floor of the orbit over the antrum area was not perforated, but it was explored. The tumor mass was very firm, rather brittle and vascular. The tumor occupied the posterior third of the orbit, encircling the optic nerve, and spread along the apex circumference on top of the periosteum, to which it was rather firmly adherent. It was not encapsulated. The sphenoid fissure was seemingly enlarged in its inferior third and was

Fig. 8.—Anteroposterior view showing the suspicious conditions in the region of the posterior section of the right orbit.

apparently filled by the tumor mass. The optic nerve pierced the tumor and was very constricted just at the foramen, while its orbital section was exceedingly edematous. Finally, the apex of the orbit was thoroughly cauterized with the electric cautery. The culdesacs were sutured and the orbital cavity was rather firmly packed with petrolatum iodoform gauze, with a drain from the external canthus.

Intensive high voltage roentgen therapy was given within twenty-four hours and repeated daily for six days.

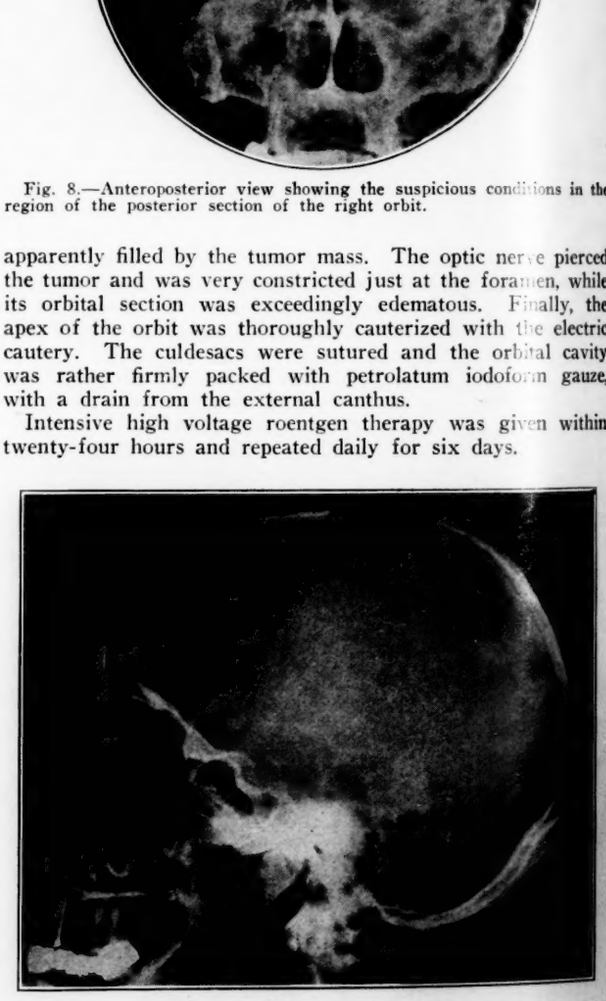

Fig. 9.—Lateral view, corroborating the observations in figure 8.

The patient made an uneventful recovery and has had two series of intensive roentgen treatments of five days each since the date of operation, which courses are to be repeated.

And now time will cast the verdict as to the immediate or future end-result.

NOTE.—In July there developed a mass in the right side of the abdomen which grew rapidly, the patient showing many of the cachectic symptoms so frequently associated with metastasis. There was also a local recurrence in the orbit.

3. Parsons, J. H.: The Pathology of the Eye **2**: 740-741.

The patient died about August 15. A postmortem was not obtainable.

The rather rapid course of this tumor verifies again the extreme malignancy spoken of by Jaffe and Ewing.

25 East Washington Street.

PITUITARY THERAPY OF ALOPECIA

A PRELIMINARY REPORT *

BENGT NORMAN BENGTSON, M.D.
MAYWOOD, ILL.

Five years ago, while I was resident at the Research and Educational Hospital of the University of Illinois, a woman with Fröhlich's syndrome was treated with various pituitary preparations. During the treatment she developed a luxuriant hair growth, in addition to regaining her normal sexual desires, reestablishing her menstrual cycle, and losing weight. The growth of hair was particularly remarkable in that the patient and her immediate female relatives (mother and two sisters) all had, since early youth, a scanty atrophic type of hair, prone to dryness and easy end-splitting.

Inferring a relationship of the pituitary therapy to this patient's hair growth and its change in texture, I began to study the effects of certain pituitary preparations in cases of alopecia and I am now in position to report on sixteen patients, in all of whom the results were so striking that a preliminary report seems desirable to render this treatment available for investigation by others, in spite of the relatively small number of cases.

It seems that coincidence could be ruled out by the uniform success in these sixteen patients, most of whom tried (one over a period of twenty-three years) various kinds of other treatments. The patients were taken in order of admittance and treated without preference or selection.

The results secured might be anticipated on theoretical consideration. An endocrine motor mechanism for the growth of hair must *a priori* be postulated, and, in view of the intimate association of the sex glands to the development of hair and of the pituitary to the sex glands, this mechanism might reasonably be looked for among these glands.

Fig. 1.—Appearance of patient 2: *A*, June 3, 1928; B, in September, 1928; *C*, June 1, 1931.

REPORT OF CASES

CASE 1.—Mrs. L. G. B., aged 30, the mother of two children, complained of nervousness, frigidity, amenorrhea for four years, scanty, dry type of hair growth, which was prone to easy end-splitting, and progressive weight increase from 160 pounds (72.6 Kg.) in July, 1923, and 224½ pounds (102 Kg.) in June, 1926, to 238½ pounds (108 Kg.), Oct. 1, 1926. A mental fogginess and slow cerebration had been noted for the last two years and a moderate polyuria for the last six months. The Wassermann reaction was negative. Basal metabolism was minus 8. The blood pressure was 118 systolic and 68 diastolic. The urine was essentially normal except that the average quantity was 2,600 cc. for twenty-four hours. A roentgenogram of the sella turcica revealed an approximation of the anterior and posterior clinoid processes, but with depth, width and length comparing with Cushing's minimal requirements of 9 by 14 mm. A pituitary therapy was begun, Oct. 11, 1926, consisting of solution of 1 cc. of anterior pituitary by hypodermic injection twice a week; 1 cc. of solution of posterior pituitary, by hypodermic injection, once a week; whole pituitary by mouth, 0.5 Gm., daily in three doses five days a week. Jan. 7, 1927, the patient weighed 214 pounds (97 Kg.); she was not so nervous and had a bloody show for two days. April 9, she weighed 194 pounds (88 Kg.), was not nervous, and had had one good and one poor period, August 18, she weighed 178 pounds (81 Kg.), was not nervous, and her last three periods were regular. There was no mental fog, and her hair was thicker and softer and not quite so dry and brittle. The blood pressure was 126 systolic and 68 diastolic. The urine output averaged 2,450 cc. December 20, the patient weighed 169¾ pounds (77 Kg.); there was no nervousness; she gave a normal sexual response; her periods were regular, but on a 30 to 33 day cycle, as compared to 25 to 28 days previous to disturbance. The hair was lustrous, soft and abundant. The basal metabolism was plus 4.

Fig. 2.—Appearance of patient 6: *A*, in June, 1929; *B*, in May, 1930; *C*, in August, 1931.

CASE 2.—A. J. R., a man, aged 60, married, without children, stated that his baldness began in February, 1926, by a dropping out of the side and the top hair. He became totally bald during the succeeding three months. The eyelashes and eyebrows fell out gradually over a period of five weeks. His beard disappeared, so that shaving became unneccessary. Additional history revealed that the patient had had rheumatism for six years, and particularly for the last two years, especially in both knees. Headaches had been present for the last three years and were getting progressively more severe and frequent, with the feeling of a tight band about the head. At first the patient did nothing about the falling hair, thinking it due to his age; later he tried many nostrums and other treatments; he then sought medical aid. When seen the patient was entirely bald, without eyelashes, eyebrows or beard. The blood pressure was 150 systolic and 90 diastolic. The basal metabolism was plus 2. The urinalysis was essentially negative except for moderate amounts of indican. The weight was 168 pounds (76 Kg.). The family history was negative, the father, mother, sister and brothers all retaining their hair to the present or until they died from other causes. The same pituitary routine as in case 1 was begun, Feb. 3, 1928. There

* From the University of Illinois College of Medicine.

were no results until August 6, when a faint lanugo appeared on the crown and over the right temple. By September 12, the entire head was covered with lanugo except for two small areas over the left temple. Feb. 1, 1929, the first evidence of true white hair was observed; the headaches had completely disappeared and the patient has had no rheumatism for two months. By May 7, a full growth of hair was completely restored, except that the hair is now white as compared to jet black previous to the disturbance. The eyebrows, eyelashes

Fig. 3.—Appearance of patient 13, April 23, 1931.

and beard returned black. This was the oldest patient in the series and the only one in the case reported in which the returning hair did not eventually return to the original color.

CASE 3.—E. A. L., a man, aged 18, single, a student, began to become bald in the summer of 1920, when his hair fell out in four patches and the baldness continued to develop increasingly larger areas. The patient was seen by four dermatologists and five other physicians from 1920 to 1925. As the patient became more bald in spite of treatments, he was taken to a well known clinic, where he spent six months in intensive treatment with the water cooled Kromeyer lamp and with thyroid orally. By this time the patient was completely bald and had lost his eyelashes and eyebrows. He was taken to Europe but was resigned to wearing a toupee on returning to America. Up to this time there had not been the slightest evidence of returning hair or of any follicular stimulation. When seen, April 15, 1928, he was completely bald. His personal history showed him to be erratic, emotional, easily aroused to anger, and a poor student. He was forced to change schools frequently because of his behavior. His father was of a mild acromegalic type and his mother and sister were of the hypo-ovarian type. A roentgenogram showed the sella turcica to be exceptionally small with the anterior and posterior clinoid processes almost touching. An endocrinologist examined the patient because of behavior peculiarities but found only a mild hypothyroidism present. An otolaryngologist examined the nose and throat and reported them normal. A dermatologist corroborated the diagnosis of alopecia areata. The basal metabolism was minus 2. The blood sugar before the administration of dextrose, was 120 mg.; one-half hour later it was 151 mg.; one hour later, 186 mg.; one and one-half hours later, 135 mg. two and one-half hours later, 130 mg. In the testing of vagotonia the pulse dropped from 80 to 68 with atropine and increased from 82 to 98 with palpitation when epinephrine was used. There were no appreciable differences with pilocarpine except the usual perspiration. Pituitary therapy was begun, April 15, 1928. The first lanugo was noted on three small areas by September 27, and by December 1, the entire head was covered with lanugo. By Feb. 7, 1929, the first true white hair was observed. He could not wear a wig at this time because it was uncomfortable. April 15, one year later, the entire calvarium was covered with true white hair, excepting the original patches of 1920, which had only a small amount of lanugo. September 10, the hair was changing from white to brown and the eyebrows and eyelashes were coming in; he had to shave twice a week as compared to his previous program of once every four to eight weeks. His weight increased from 145 pounds to 162 pounds (66 to 73.5 Kg.) in eighteen months. By Feb. 4, 1930, twenty-two months later, the hair was all in, the texture was good and it was all black, the eyelashes and eye brows were in and of normal color. Now he has to shave every other morning. He has become a good student (B grade) at an engineering school; he is emotionally better, and all his surliness is gone.

CASE 8.—W. X. M., a man, aged 37, married, the father of five children, became bald after a drinking spree of five days' duration (1923), in a small spot over the left temple, increasing to the size of a half dollar (31 mm.) within a few weeks. The patient went to three physicians in as many weeks but, failing to see immediate results, he stopped further treatments. There was no change in the spot until the winter of 1924, when, after the patient had his nose and cheeks frostbitten, the spot enlarged to the size of a cup. The patient went to four or five physicians in rapid succession and to one naprapath, but the spot stayed 4 inches in diameter. The winter of 1928, the patient developed severe influenza; he was in bed for five weeks, delirious part of the time; he was sleepy the greater part of the beginning of this illness and had severe headaches which made him nauseated. No physician was called to see him because he was out of work and had no

Fig. 4.—Appearance of patient 13, July 7, 1931.

money. While he was convalescing the spot enlarged, this time so that the entire left side became denuded. When seen, Aug. 20, 1929, the patient's entire left side of the head was bald and shiny; the right half was of fair quality and red. There was no disturbance of the eyebrows or eyelashes. Heavy axillary pubic and chest hair was noted. There was powerful muscular development, the patient weighing 212 pounds (96 Kg.) with very little fat. The Wassermann reaction was four plus. The patient had had a primary chancre about twenty years before for which the only treatment had been cauterization, and later

some injections into the "skin" and some bitter medicine by mouth. Any other history was impossible to obtain because of the type of perverse patient under observation. Wishing to see the influence of pituitary on this type of baldness, I added no arsenicals to the treatment. November 1, a faint evidence of lanugo manifested itself over the entire bald area, with the exception of a small area near the mastoid the size of a quarter (25 mm.), within the space of two days (from one injection period to the next). By Feb. 19, 1930, true white hair and occasional reddish hairs were appearing. August 10, the hair was all in, reddish and hard to distinguish from the opposite side except that it was a shade lighter. The patient was then advised to come for antisyphilitic treatment but he never showed up.

This was the only Wassermann positive case in the series and the only one in which the lanugo appeared so completely over the entire denuded area within a few days.

present remains unanswered. The probable conclusion might be that the anterior lobe in the instance cited received synergistic aid from the other ductless gland extract.

In the series presented, pituitary was the only treatment that I used, without resorting to other aiding forms or types of recognized therapy. It is true that the cases treated fall into the category of glandular alopecias and whether any type of baldness would respond to this form of treatment is a question that remains to be answered only on further detailed investigation and study. I have recently begun a series of observations on patients with recessive, senile and constitutional baldnesses and will report the results obtained at a later date.

Summary of All Cases Under Observation

Case, Sex,* Age	Wassermann	Basal Rate	Associated Etiology	Age Hair Loss Began	Years Bald	Treatment and Dosage: Hypodermic Anterior Pituitary Extract	Oral Anterior Pituitary Extract	Posterior Pituitary Extract	Thyroid	Miscellaneous	Number of Injections	Results
1 ♀, 30	Neg.	— 8	Fröhlich syndrome	13	17	1 cc. once a week; later, twice weekly	Whole pituitary 0.5 Gm. daily; 5 days a week	1 cc. weekly	....	Post. pituitary 0.3 Gm. daily	119	Excellent
2 ♂, 60	Neg.	+ 2	Senility and alopecia	58	2	1 cc. once weekly; later, twice weekly; then three times	Whole pituitary 0.5 Gm. daily; 5 days a week	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	146	Excellent
3 ♂, 18	Neg.	— 6	Alopecia areata	10	8	1 cc. three times weekly	Whole pituitary 0.5 Gm. daily; 5 days a week	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	260	Excellent
4 ♂, 27	Neg.	—18	Alopecia areata	21	6	1 cc. three times weekly	Whole pituitary 0.5 Gm. daily; 5 days a week	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	182	Excellent
5 ♀, 43	Neg.	Not taken	Fröhlich syndrome	27	16	1 cc. once weekly; later, twice weekly, then three times a week	0.3 Gm daily; later 0.5 Gm. daily; then 0.6 Gm. daily	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	100	Good
6 ♂, 24	Neg.	+ 6	Alopecia areata	23	½	1 cc. three times weekly; then four times weekly	0.5 Gm. daily; 5 days a week	0.5 cc. weekly, then 1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	220	Excellent
7 ♀, 29	Neg.	Not taken	Alopecia areata	7	22 years incomp. 10 years complete	1 cc. three times weekly; later, four times weekly	0.3 Gm. daily; later, 0.5 Gm. daily	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	140	Excellent
8 ♂, 37	+++	Not taken	Syphilis areata	31	6	1 cc. three times weekly; later, four times weekly	0.5 Gm. daily; 6 days a week	....	....	.....	150	Excellent
9 ♂, 30	Neg.	+10	Alopecia areata	29	1	1 cc. four times weekly	0.5 Gm. daily; 6 days a week	....	0.1 Gm. daily, 5 days a week	.....	188	Excellent
10 ♀, 8	Neg.	Not taken	Trauma	8	½	0.5 cc. three times weekly	0.15 Gm. daily; later, 0.3 Gm. daily	....	....	.....	78	Good results
11 ♂, 19	Neg.	+ 8	Alopecia areata	18	½	2 cc. four times weekly	0.5 Gm. daily; later, 0.7 Gm. daily	....	....	.....	120	Good; still under treatment
12 ♂, 28	Neg.	—14	Universal alopecia	12	16	1 cc. daily	0.5 Gm. daily; later, 0.7 Gm. daily	....	....	.....	162	Fair; still under treatment
13 ♂, 47	Neg.	+ 4	Alopecia areata	46	1	1 cc. daily	0.7 Gm. daily	....	....	.....	92	Excellent; still under treatment
14 ♀, 21	Neg.	+16	Alopecia areata	21	⅙	1 cc. daily	0.5 Gm. daily; 6 days a week	....	....	.....	56	Excellent
15 ♂, 35	Neg.	— 2	Universal alopecia	12	23	2 cc. three times weekly; then, four times weekly; now, five times weekly	0.5 Gm. daily; then 0.7 Gm. daily	....	....	.....	76	Good beginning still under treatment
16 ♂, 27	Neg.	—20	Alopecia areata	27	¼	2 cc. three times weekly; then, four times, now five times a week	0.7 Gm. daily	....	....	.....	88	Excellent beginning; still under treatment

* In this column, ♂ denotes male; ♀, female.

COMMENT

In keeping with embryologic studies, the anterior lobe, which is an invagination of buccal ectoderm and glandular in structure, might conceivably be thought to exert some influence on such other ectodermal tissues as the hair follicles. While in most of the cases here reported the anterior lobe was apparently the guiding influence, in isolated instances (case 9) the anterior lobe did not seem able to stimulate the hair growth completely until thyroid was added.

Whether the result was obtained because of the addition or merely after it is a question that for the

It is interesting to note that cases 2, 6, 7, 12 and 14 gave histories of severe headaches that had previously been treated as chronic sinus or migraine unsuccessfully, but in every instance the patient became completely free from headaches on treatment with pituitary and patient 2, who had only moderate success in alleviating rheumatic arthritis symptoms with salicylates, also responded to pituitary therapy.

Additional observations were noted and are borne out by the accompanying chart. One is that increased dosage and frequency of injection apparently decreased the time factor in restoring lanugo and later hair

growth. The time factor of the alopecia or the amount of area bald entered into the duration and the number of injections necessary to complete growth in these patients.

The weight increased in the patients that were thin and decreased in those overweight under treatment.

The blood pressure tended to rise in those below normal and decreased in those with hypertension. Rises of from 10 to 20 points observed in three cases following injections were, however, transient and lasted only five to six minutes.

The only untoward symptoms, as reported by the patients, were headache, in two, lasting from two to three minutes following a hypodermic; moderate cramping of the bowels, in one, which disappeared by the fifth injection; dizziness, in six, which would come on a few minutes after a hypodermic and last from one to eight minutes; flushing and a feeling of heat, in one, which lasted about five minutes and after the twentieth injection was no longer noticed.

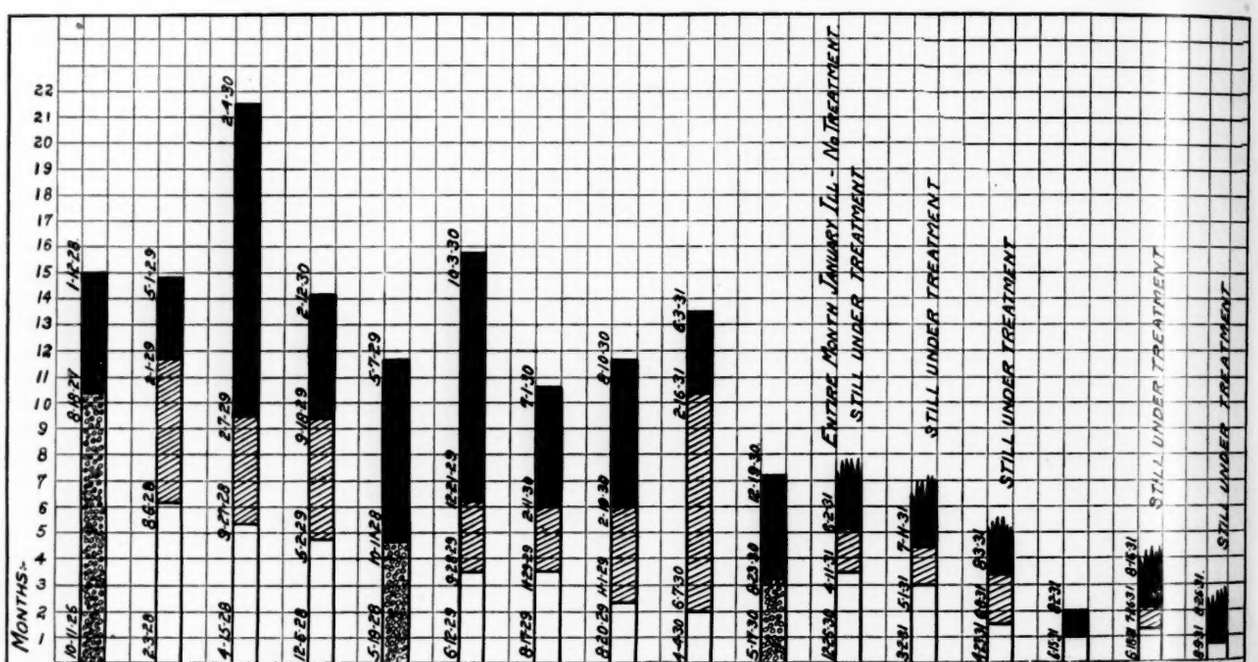

Fig. 5.—First appearance of lanugo and of hair, and total months of treatment: white area denotes baldness; stippled, scanty hair; shaded, lanugo; black, hair.

CONCLUSIONS

1. A definite therapeutic relationship seems established between certain alopecias and the pituitary gland preparations used.

2. The anterior lobe has, in most of the cases, been the sole influence in producing the growths of hair obtained.

3. The hypodermic use of pituitary gland has secured more satisfactory and more rapid hair growth than oral administration, which on the whole is disappointing. The combination of hypodermic injections in large doses (2 cc.) and oral administration has been found to give the most rapid response.

ADDENDUM

Since the preliminary report was submitted to THE JOURNAL, additional observations have been noted on alopecia prematura, circumscripta and seborrhoica, a freshly prepared extract of the anterior lobe of the hypophysis being used. While the new series of experiments are but six weeks under way, indications point to the probability that the common types of baldness apparently demonstrate greater primary stimulation of the hair follicle than did the areata and universal alopecias. Thus, a person with alopecia circumscripta since 1914, presenting the typical shiny crown and forehead, has grown definite lanugo and hair in four weeks on daily injections. Another, with premature alopecia, eighteen years since its beginning, has shown visible results in three weeks. Patient 2 of the first series, who developed white hair and was discharged, has started with the new injections and is growing black hair at 64 years of age.

Enthusiasm at this time is not warranted, and continued observations should be made until the merit or failure of this treatment is decided.

1603 South Seventh Avenue.

Something Physicists Cannot Measure.—The physiological interconnection between the different parts of the body is continuously in existence, and is far more intimate than is generally realized or assumed. In biology there is no such thing as purely mechanical determination. And, curiously, in the latest developments in pure physics, there has recently been discovered a new "law," the "principle of indeterminacy," which asserts (and here I quote from Professor Eddington's "Nature of the Physical World") that "measurements cannot reveal to us a unique sequence of cause and effect in the material world. That there is an element of what we can only call free will in the basic phenomena of nature." "Science has now withdrawn its moral opposition to free will. The future is a combination of the causal influences of the past, with unpredictable elements." "There is an indeterminacy of behavior which is part of the character of the atom." That is, physicists now apparently agree for the first time that they are up against something in the physical world which they cannot measure, and which therefore they cannot accurately predict.—Dickson, D. E.: Humility in Medicine, *Edinburgh M. J.*, **38**:530 (Sept.) 1931.

THE MAGNITUDE OF REGURGITATION WITH AORTIC LEAKS OF DIFFERENT SIZES

A REVIEW OF EXPERIMENTAL WORK *

CARL J. WIGGERS, M.D.
CLEVELAND

[EDITORIAL NOTE.—This paper, together with the papers of Drs. Katz and Sutton, concludes the symposium on the heart and the circulation. The papers of Drs. Henderson, Eyster and Bazett were published last week.]

Since Corrigan in 1832 first described the typical pulse of aortic insufficiency and attributed its rapid collapse to diastolic backflow, clinical and laboratory investigators alike have attempted to evaluate the magnitude of the regurgitation in this condition. I have long maintained that crucial evidence of a considerable regurgitation has not been adduced and further that all the typical signs can be logically explained on the assumption that only a reasonably small regurgitation takes place. By this I mean a regurgitation volume equivalent to about 5 or 10 per cent of the systolic ejection, in contrast to the 50 or 60 per cent generally assumed by those who speak of a large, a considerable, a substantial or a significant regurgitation.

In this article I will restate briefly the defects in the experimental evidence which led to my contention and then present briefly recent experiments from my laboratory which make it necessary to abandon the view in the case of large leaks.

PHYSICAL EXPERIMENTS ON CIRCULATION MODELS

Artificial circulation models were first employed in the study of valvular lesions by Marey.[1] It can readily be demonstrated by such devices that aortic insufficiency causes only a moderate fall of systolic and a much greater fall of diastolic pressure (fig. 1 *A*). Pulses recorded from an artificial artery (fig. 1 *B* and *C*) show a considerable increase in amplitude and a change in basic form, consisting of a steep rise (water hammer characteristic) and a very rapid fall (collapse characteristic). Capillary and venous pulsations are demonstrable with ease, indicating that a central, not a peripheral, factor is concerned in the production of the capillary pulse. Measurement of the peripheral flow before and after a lesion shows that the total systolic discharge of the ventricles increases but that the net discharge and minute output decrease. This indicates that considerable regurgitation takes place.

While such experiments are valuable, particularly in laboratory instruction, it is questionable whether such observations can be transferred directly to hearts of animals and man for (*a*) the ratio between the size of the leak and the orifice is apt to be different; (*b*) the pressure relations are not the same, and actual values are of a different order of magnitude, and (*c*) the relaxation of a rubber bulb is unlike that of the muscular ventricle.

By means of an artificial device in which particular attention was directed to keep the size of orifices and leaks more nearly like those in the body, Allan [2] found that the net output is reduced from 55 to 60 per cent with leaks equaling from one-half to one-seventh the area of the orifice. The size of the leak, however, proved less important than the length of diastole or the heart rate. Levy [3] had previously reached similar conclusions on a mathematical basis. This is also supported by arterial pressure changes in artificial machines for, as shown in figure 1 *A*, no other agent is quite so effective in restoring diastolic pressure to or above normal levels.

EXPERIMENTS USING MEAN ARTERIAL BLOOD PRESSURE, VOLUMETRIC STUDIES OF THE VENTRICLES AND RECORDS OF LEFT VENTRICULAR PRESSURE

If considerable regurgitation obtains after sudden production of a lesion, the net discharge should decrease significantly, and this should produce a prompt and permanent fall of mean pressure in animals. Experiments reported by Rosenbach,[4] Cohnheim,[5] de Jager,[6] Kornfeld,[7] Goddard [8] and Karsner,[9] as well as numerous personal experiments, indicate that mean pressure either remains unaltered or, after an immediate moderate decline, rapidly returns to or above normal levels within five minutes or less. These variable and minimal effects are not surprising, in view of the fact that compensatory changes, such as increased tidal volume, accelerated rate and peripheral adjustments, occur immediately, though not always in the same combinations in different animals. Chiefly for these reasons, the method has contributed nothing to our solution of the problem.

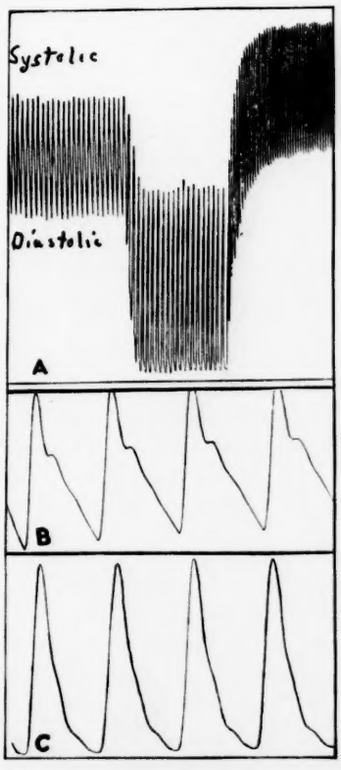

Fig. 1.—Effects of aortic insufficiency demonstrated by an artificial circulation machine: *A*, effects of lesion on systolic and diastolic pressures and compensatory effect of cardiac acceleration; *B* and *C*, changes in pulse contour. Note larger pulse amplitude and rapid decline after lesion in *C*.

The ventricles of experimental animals may be enclosed in a cardiometer and the changes in size during systole and diastole recorded by suitable apparatus. Stewart [10] employed this method and found that ventricular volume curves alter very little after rupture of the aortic cusps; hence he concluded that very little blood regurgitates. Zollinger,[11] a year later, reported an increased diastolic size but no change in the systolic discharge. His pulse curves do not display typical

* From the Physiology Laboratory, Western Reserve University.
* Read before the Section on Pathology and Physiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

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changes in contour, however. MacCallum [12] used a similar method on a heart connected in a perfusion system, in which the peripheral resistance supposedly remained constant. The diastolic size and stroke both increased. Since the peripheral outflow also diminshed, he concluded that a considerable portion of the systolic discharge must regurgitate. He failed to exclude the possibility, however, that this blood may have passed through the coronary system. Straub [13] reported similar experiments on a heart-lung preparation and concluded that 56 per cent of the blood ejected during systole regurgitates in diastole. The only cardiometer record published is not convincing, however. Recently Meek [14] has informed me that in the Wisconsin laboratories an increased diastolic volume and increased discharge have also been noted after insufficiency.

Conclusions based on volumetric records of the two ventricles must, however, be accepted with due reserve and caution, for (1) slight dislocation of the cardiometer with reference to the ventricular base occurs more easily than it is avoided in experiments involving destruction of valves; (2) acute lesions are frequently accompanied by changes in heart rate which themselves affect both diastolic size and output, and (3) inferences as to what occurs in the left side of the heart can be drawn only with difficulty from records of both ventricles.

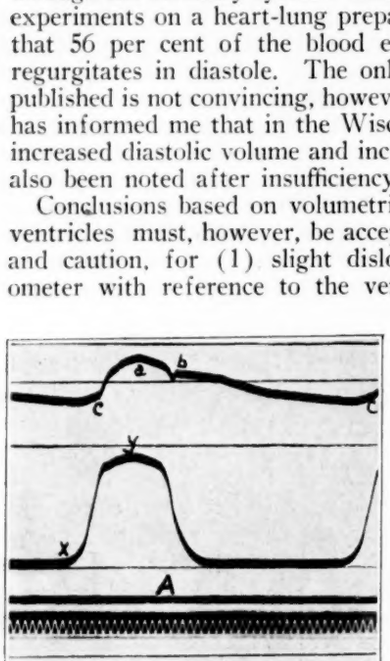

Fig. 2.—Aortic and left ventricular pressure changes following moderate experimental aortic insufficiency: *A*, normal; *B*, after insufficiency. Note low diastolic pressure (*c*), larger pulse pressure (*c, a*), greater systolic decline (*a-b*), and pronounced decline throughout diastole (*b-c*).

The advantage of studying pressure records from the left ventricle alone are therefore apparent. Marey [1] states that Chauveau produced experimental insufficiency in horses while recording intraventricular pressure. The curves reproduced by Marey are obviously greatly distorted by artefacts. Gerhardt,[15] in 1905, registered left ventricular pressure curves with a Hürthle membrane manometer. He did not find any alterations of diastolic pressure after a lesion or observe any change in the relaxation gradient. The systolic pressure, however, rose to higher levels.

In 1915, I [16] reported records made by the use of optical manometers. The records of figure 2 illustrate typical changes. The diastolic pressure (fig. 2 *x*) was raised somewhat and the pressure maximum (fig. 2 *y*) was greatly elevated. The curves show deviations in form which are accounted for by the reduced resistance against which blood is ejected. It appeared probable at the time that a significant backflow must affect the gradient of the descending limb; but not the slightest alteration was found. With these experiments began my belief that no considerable regurgitation occurs when the aortic valves are rendered insufficient.

FORM OF THE ARTERIAL PULSE AS EVIDENCE OF REGURGITATION

The rapid catacrotic decline common to arterial pulses recorded from circulation models, experimental animals and patients in which aortic insufficiency exists has tacitly been accepted as evidence for considerable regurgitation. For, if not due to regurgitation, how explain its occurrence?

Stewart [10] was the first to point out a serious difficulty; viz., the chief drop precedes the dicrotic wave in the peripheral pulse (fig. 3). From this he concluded that it must be systolic in time rather than diastolic, as is commonly taught. Subsequent improvements in methods of graphic registration, together with a clearer understanding of the physical changes involved in pulse form, have shown that this conclusion was not justifiable. I [17] found in 1914 that the diastolic gradient is much steeper and that this is chiefly responsible for the low diastolic pressure reached (fig. 2 *B, b-c*). Furthermore, the analyses of Frank [18] have shown that the end of systole does not correspond to the rise of the dicrotic wave of the *peripheral* pulse but coincides with an unrecognizable point on the catacrotic descent which precedes it (fig. 3). Nevertheless, as Lewis and Drury [19] point out, the decline of pressure previous to the apex of the v-shaped incisura of the *central* arterial pulse is steeper (figs. 2 and 3).

Hence an explanation of the so-called systolic collapse, which contributes to the total collapse, is required. Stewart interpreted the phenomenon as one due to reflex vasodilation which accompanies the lesion. That this is not the explanation was demonstrated by experiments [17] reported in 1914, for (1) the characteristic changes in the pressure pulses occur in the beat following a lesion; i. e., before reflex vasodilatation can possibly operate, and (2) the characteristic changes persist when this factor is eliminated by clamping the thoracic aorta.

It is only recently that the true significance of the systolic collapse has become apparent. While the higher systolic pressure contributes slightly, it is chiefly caused by a redistribution of the ejection volume and in such a way that a proportionately larger quantity is ejected during early systole and correspondingly smaller amounts during the latter portion of ejection. This is only indirectly a consequence of the aortic lesion; it is directly associated with the altered contraction following a rise of initial tension.

Since the chief collapse is a diastolic phenomenon in the aorta, how is it to be interpreted other than as a consequence of a considerable regurgitation? In 1923, I [20] ventured to suggest the possibility that a rapid and considerable loss of pressure from the arterial system might occur without a great regurgitation of blood. The following picture was drawn:

Suppose a system consisting of two flasks, A and B, communicating by rigid tubing and a stop-cock, to be completely filled with fluid. Further suppose that the stop-cock is closed and that the fluid in flask A is placed under a pressure of 5 mm. Hg and that in flask B under the pressure of 150 mm. Hg. Upon opening the stop-cock, the pressure in the two flasks will

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become equal, that in flask A rising, that in flask B falling. It is obvious that since both flasks are already filled with an incompressible liquid, no transfer of liquid can take place. If both flasks were partially distensible, then a small transfer of fluid could take place.

In other words, though differing emphatically from Stewart as to the fundamental cause of the changes in the pressure pulses, I was inclined to agree with him that the percental regurgitation is much less than is generally believed.

The validity of such a conception—regurgitation of pressure with regurgitation of only small quantities of liquid—appears to have presented incomprehensible difficulties in the minds of many colleagues and friends. The difficulty has been expressed by Gladstone [21] thus: In aortic insufficiency a decrease in aortic pressure cannot occur without significant regurgitation of blood, for "in an elastic musculomembranous distensible container one must introduce or withdraw considerable amounts of a fairly incompressible fluid to produce comparatively small changes of pressure." With this argument I am in complete agreement, the only question at issue being what percental regurgitation constitutes a "considerable amount." Is it 10 or 50 per cent of the systolic discharge? On this essential point Gladstone's analyses do not offer any new information.

My own observations and also those of others have thus failed to convince me that the diastolic collapse of the arterial pulse could be accounted for only by a very large backflow.

ROENTGENOGRAPHIC HEART SHADOWS AS CRITERIA

If experimental aortic insufficiency is accompanied by considerable regurgitation, it may be expected that the ventricular shadows determined by fluoroscopic or roentgenographic methods will increase immediately after production of a lesion. This is apparently not the case. Bazett [22] and Sands [23] carried out investigations in which it appeared that an immediate reduction of the x-ray shadow occurred, which they attributed to coincident cardiac acceleration. Herrmann [24] reported similar observations in many dogs, while in others the size remained unaltered. Enlarged areas occurred only as hypertrophy subsequently supervened. Eyster,[25] however, found earlier evidence of enlargement but apparently several days were required to make the increase very obvious. I have given considerable thought to the mathematical probabilities and fail to understand how they can possibly be interpreted as evidence that more than 10 per cent regurgitates.

But it is extremely possible that such methods may not demonstrate the entire increase in ventricular size which actually obtains, because (*a*) the production of an aortic insufficiency is generally accompanied by an increased heart rate which tends to reduce diastolic size; (*b*) the anterior-posterior enlargement of the ventricles may exceed their lateral expansion, and (*c*) considerable change in volume is required to increase the size of x-ray shadows enough to be reasonably convincing.

VOLUME FLOW AND VELOCITY CURVES AS CRITERIA

In experiments which it was my privilege to witness, Hewlett and Van Zwaluwenburg [26] recorded volume pulses of an arm by optical methods in clinical subjects with aortic regurgitation. Their curves are difficult to interpret otherwise than that a considerable backflow from the arteries of the arm toward the heart takes place; but there is no proof that all this is diastolic in time or that it actually flows back into the ventricle in corresponding amounts. It is not inconceivable that a considerable part of this blood could be accommodated in the central arteries or that it passes through the coronary system.

Lewis and Drury [19] attempted to solve the question of regurgitation in aortic insufficiency by studying the changes in arm flow for short periods of time before and after an arteriovenous fistula was compressed. They appear to have demonstrated that the arm flow increases about 50 per cent when an arteriovenous fistula is closed, and are probably correct in their conclusion that about half of the ejected blood is shunted

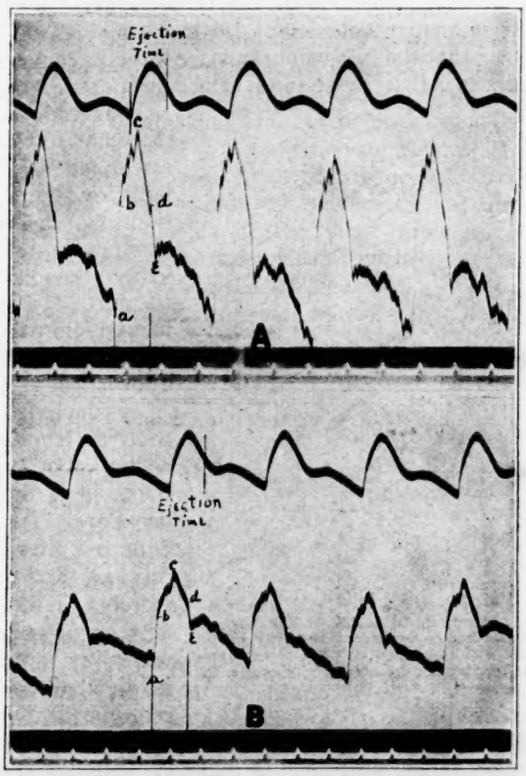

Fig. 3.—Radial (upper) and subclavian (lower) pulses from clinical cases of mild aortic insufficiency displaying collapsing characteristic on palpation. Note absence of collapsing characteristic in central pulse in lower set of records and relation of ejection phase to dicrotic wave in peripheral pulse.

through an arteriovenous circuit. But that "these observations finally lay at rest the controversy as to the amount of blood regurgitating in clinical aortic disease" cannot be admitted. It is rather probable that they contribute nothing to the solution of the problem. The weakness of the deductions lies not in the experimental results but rather in the premise that the two conditions correspond dynamically. In aortic leaks, the loss of blood from the arterial system occurs only during diastole; in arteriovenous fistula during systole as well. In valvular insufficiency the onward moving column must first be brought to a halt, then reversed; in arteriovenous fistula the outflow is directed with the current. In the first condition, backflow must occur into a closed cavity in which pressure is still relatively high. In the latter, blood enters the system against a low venous pressure and flows into

21. Gladstone, S. A.: Bull. Johns Hopkins Hosp. **44:** 83 (Feb.) 1929.
22. Bazett, H. C.: Am. J. Physiol. **72:** 201, 1925. Bazett, H. C., and Sands, J.: J. Clin. Investigation **3:** 65 (Oct.) 1926.
23. Sands, J.: Quart. J. Exper. Physiol. **215**, suppl., 1923.
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readily expanding veins. All these differences are lightly waved aside by the statement that they do not matter, because the form of the arterial pulse and the pulse pressures are so strikingly similar in the two conditions.

To draw conclusions from a certain likeness of the pulse contour and arterial pressure relations in the two conditions is as dangerous as to accept "likeness" in two individuals as evidence of blood relationship. This is especially true when the likeness has reference to the peripheral pulse only. We now know, as a result of Frank's [18] careful analyses, that the central and peripheral pulses bear no great resemblance to each other, but, as shown in figure 4, the latter may develop a variety of forms in the same normal individual without any alteration of the central pulse form. This also accounts for the fact that there is no specific association between radial pulse form and aortic insufficiency; all types and varieties occur in different individuals with large aortic leaks or arteriovenous fistulas. The similarities of which Lewis and Drury speak are in fact merely palpatory delusions. Such are my reasons for doubting that the two conditions are directly comparable in the sense that Lewis and Drury proposed.

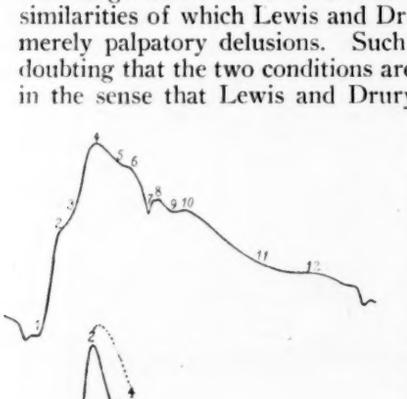

Fig. 4.—Central and peripheral pulse contours (after Frank) showing how form of the normal radial pulse can be modified by variable incidence if reflected waves are without occurrence of contour changes in central pulse.

More recently, Dock and O'Hara [27] attempted to throw light on the question by recording changes in the velocity flow within the aorta of experimental animals, by means of a modified hemodromograph. They concluded that after destruction of aortic valve leaflets there is a definite backflow. If it is admitted that their curves approximately depict the velocity changes, which is doubtful in view of Frank's recent critical analysis,[28] no evidence is presented that the rapid decline of the curve takes place during diastole. Similar records on animals, obtained in my laboratory by use of Broemser's differential sphygmograph, lead to the conclusion that it occurs during systole and therefore cannot be attributed to regurgitation.

THE SIGNIFICANCE OF THE DIASTOLIC MURMUR

Clinicians are prone to accept the presence of a diastolic murmur as sufficient evidence of considerable regurgitation, despite the general knowledge that murmurs may arise without significant regurgitation. There are many facts in connection with this well known murmur which could equally well be marshaled in favor of the view that comparatively little backflow of blood occurs. As a rule, the murmur consists of a short series of decreasing vibrations which replace the second sound. It is rare to have them extend far into diastole, as is the case in mitral stenosis. In other words, the murmur takes place during isometric relaxation while pressures are still high in the ventricle and no cavity has yet been created by muscular relaxation. It is absent during the remainder of diastole while the reduction of arterial pressures continues rapidly. It is obvious that no evidence in favor of a large regurgitation can be adduced from the character or time of the diastolic murmur.

In common with many clinicians and investigators, I have always had the feeling that aortic insufficiency should be accompanied by a rather considerable reflux of blood. However, my own investigations and also those of others, which I have endeavored to review critically yet sympathetically, have failed to convince me that crucial scientific evidence has hitherto been advanced in its favor. Occasionally, the experimental evidence appeared suggestive, but on careful consideration the results were susceptible of other interpretations. However, I realize fully a reviewer's difficulties in evaluating the experimental results of others, for it is not his privilege to share in the subtle and unreported tendencies of an investigation, which enter so largely into the conclusions which are drawn. By the actual performance of experiments, an intangible and undefinable vision is gained which often enables one not only to see the facts but to see through them. With reflections such as these, I determined several years ago to institute investigations again in my own laboratory and, as far as possible, by methods that hitherto had not been employed.

RECENT CONTRIBUTIONS

My associates and I first set out to determine the maximal regurgitation possible under the most favorable conditions; i. e., when the aortic orifice was practically patent, when the aorta contained sufficient fluid and pressure to fill the ventricle within 0.3 second, but when filling could occur simultaneously from the auricle under low pressure. Physical experiments on dead hearts soon convinced us that the problem could not be solved unless the heart was beating. In association with Dr. Green,[29] a special apparatus was designed by means of which a cat's heart was perfused in such a manner that the tidal volume entering and leaving the left ventricle by way of the mitral valves was separated by a thin membrane from the fluid regurgitating through the aortic valves. The changes in aortic pressure, the variations in tidal volume and the alterations in the volume of the heart itself were recorded by suitable optical methods. The difference between the tidal volume before and after a lesion offered an estimate of the quantity of regurgitating blood replacing natural filling from the auricles. The increase in the external size of the ventricle indicated the regurgitating volume accommodated by stretching of the ventricles. The two together gave the total regurgitation. Our results showed that under optimal conditions the total regurgitation can equal from 50 to 60 per cent of the tidal volume. We believe the percental regurgitation could not possibly exceed these values in intact hearts, though it might be considerably less. We further found that from 40 to 50 per cent is accommodated by preventing natural filling from the auricle and only 10 per cent by additional stretching of the left ventricle.

The question at once arose whether this might account to some extent for the small changes in ventricular size reported by other investigators. We accordingly investigated the immediate effects of an aortic leak on left auricular pressures. Optical trac-

27. Dock, W., and O'Hara, J. J.: Proc. Soc. Exper. Biol. & Med. **23**: 706-709 (May) 1928.

28. Frank, O.: Ber. ü. d. ges. Physiol. **58**: 110, 1931; Ztschr. f. Biol. **90**: 181, 1930.

29. Wiggers, C. J., and Green, Harold: Proc. Soc. Exper. Biol. & Med. **27**: 599 (March) 1930.

ings such as are shown in figure 5 demonstrated a slight elevation of the basal pressure level, but the consecutive waves showed no significant changes. Judging from the magnitude of the auricular pressure drop from *d* to *e* before and after a leak, it appeared that ventricular filling from the left auricle was slightly increased, not decreased, as a result of a leak. This occurred despite the fact that natural inflow did not commence (*d*) until aortic pressure had decreased very considerably. The conclusion is inescapable that the interference with natural filling found in the isotonically

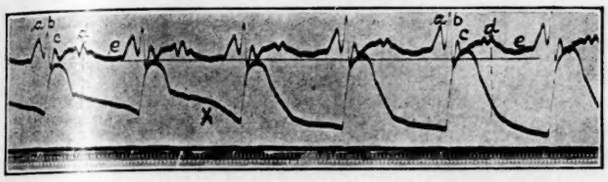

Fig. 5.—Left auricular (upper) and aortic (lower) pressure curves showing immediate effects of experimental lesion at *x*. Note comparatively slight elevation of basal auricular pressure indicated by line and slightly greater decline of pressure (*d-e*) during ventricular filling; *a*, auricular wave; *b* and *c*, ventricular impacts; *d*, beginning of ventricular filling.

contracting cat heart does not obtain in intact hearts except possibly when free mitral regurgitation exists simultaneously.

Our experiments were next directed to ascertaining whether changes in ventricular size actually occur after production of an experimental lesion. After Strughold [30] under my direction had worked out the experimental technic of studying changes in ventricular size by means of moving pictures, Theisen, Williams and I [31] adapted the method to the study of aortic regurgitation. This method has several advantages over radiographic studies: 1. The heart rate can be controlled and kept constant. 2. The outline of the ventricles can be accurately determined by progressively enlarging and drawing each frame. 3. The size of the ventricle can be determined during successive intervals of 0.03 second, not merely at the end of diastole as in ordinary roentgen exposures. In seven experiments the diastolic size was not altered and the systolic discharge either remained the same or decreased slightly after an aortic insufficiency. Four of these experiments were disregarded on the basis of possible technical errors. In sixteen experiments the diastolic size and systolic discharge of the left ventricle increased from 16 to 58 per cent during aortic insufficiency.

While these experiments were presented as showing an average regurgitation of about 36 per cent of the systolic discharge, they showed considerable differences. It therefore became our next problem to discover the factors responsible. To do this, Miss Maltby and I [32] recorded optical pressure pulses from the left ventricle of dogs whose heart rate was kept slow and constant. Leaks of different sizes were produced by means of a newly designed valve spreader which enabled us to produce any size leak up to the full size of the aortic orifice. An analysis of the pressure curves convinced us that, contrary to previous opinions [33] the size of the leak chiefly determines both the actual and the percental regurgitation. This undoubtedly influenced our previous variable results more than we appreciated at the time and is probably also a reason why other investigations obtained variable effects on heart size. Tearing or cutting the cusps gives leaks of uncertain sizes but rarely causes maximal leaks comparable to severe clinical conditions. Our earlier trocar method was also found to produce greater variations than calculated, owing to misplacement of the instrument and occasional holding back of leaflets against the aortic wall.

Again, contrary to current belief, changes in heart rate, such as are likely to occur in patients, do not appreciably affect the volume of regurgitation when the leak is small, and not at all when it is large. Furthermore, we discovered that superimposed hypertension from peripheral constriction increases the actual volume of regurgitation but scarcely affects the percental regurgitation in relation to systolic discharge. In other words, the net discharge remains the same but the total discharge and work of the ventricles increase. This stresses the importance of considering both the actual and the percental reflux in evaluating the deleterious or beneficial effects of other agents or factors.

It still remained to clarify our knowledge as to the exact time of diastole at which maximal regurgitation occurs and to determine the degree of regurgitation during successive portions of diastole; e. g., during protodiastole, isometric relaxation, rapid filling from auricle, and diastasis. The aortic pressure curves are particularly suitable for such investigations. Continuing our investigations, Miss Maltby and I found that the greatest regurgitation takes place during the protodiastolic phase; i. e., at the very onset of diastole represented in the central pressure pulse by the incisura. This is the reason that the incisural V occupies a progressively lower position as the size of the leak increases. Incidentally, this is of practical importance in evaluating the size of the leak clinically. Feil [34] is reporting a similar relation between the depth of the incisural fall of pressure and the size of leaks found post mortem in clinical insufficiency due to different infections.

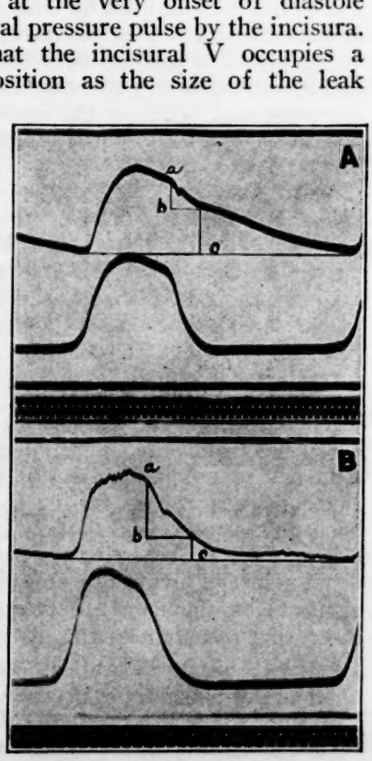

Fig. 6.—Aortic and ventricular pressure curves before (*A*) and after (*B*) large experimental insufficiency. Note extensive diastolic collapse (*a-b*) preceding ventricular filling from auricles and comparatively slight additional decline (*b-c*) during remainder of diastole. Contrast with effects of mild insufficiency shown in figure 2.

The distribution of the regurgitation during successive diastolic phases depends, however, on the size of the leak. Thus, we found that in small leaks 33 per cent of the comparatively small backflow happens during protodiastole and 67 per cent during the remainder of diastole. In extremely large leaks, 66 per cent of the relatively large regurgitating volume enters the ventricle before the auriculoventricular valves open. This is well shown in the curves of figure 6. Incidentally, these observations remove one of the obstacles to a complete acceptance of the view that a large regurgitation can occur, for the postulated competition between filling from the auricle and the

30. Strughold, H.: Am. J. Physiol. **94**: 641 (Sept.) 1930.
31. Wiggers, C. J.; Theisen, H., and Williams, H. A.: J. Clin. Investigation **9**: 215 (Oct.) 1930.
32. Wiggers, C. J., and Maltby, Alice B.: Am. J. Physiol. **97**: 689, 1931.
33. Allan (footnote 2). Levy (footnote 3)
34. Feil, H.: To be published.

aorta does not take place in large leaks, because the aortic blood gets there first.

It remained to explain the observations that the ventricular relaxation gradient does not alter despite the considerable backflow during protodiastole and isometric relaxation. We were forced to the conclusion that the ventricular relaxation gradient is neither determined nor affected by the entry of blood into the ventricle, but solely by its mode of contraction; i. e., whether loaded or after loaded. The unexpected discovery was made, however, that the ventricular pressure curve continues to maintain an afterloaded pattern unless extremely large leaks exist. Even partially functioning leaflets or fragments of valves can offer sufficient resistance to maintain an afterloaded type of contraction and relaxation.

Summarizing our present views, we may say that both the magnitude of the regurgitation and its distribution during successive phases of diastole are determined by the size of the leak. Undoubtedly there are many incipient cases of aortic insufficiency clinically in which the magnitude of the regurgitation is not great, but it is probable that in advanced stages of the disease a large reflux obtains. In the former, regurgitation predominates during the latter phases of diastole; in the latter, it happens chiefly during the initial period of relaxation. Between these extremes, all gradations occur.

Finally, it should not be without interest to a medical audience to learn that our recent studies give promise of supplying a method by which the size of the leak can be estimated in patients. The chief criterion is the steepness and depth of the incisural drop evidenced in optical records taken from the subclavian artery of man.

2109 Adelbert Road.

RECENT ADVANCES IN THE INTERPRETATION OF THE ELECTROCARDIOGRAM *

LOUIS N. KATZ, M.D.
CHICAGO

With the natural enthusiasm to employ to the full every newly invented instrument, there often occurs a tendency to put it to uses for which it is unfit. The electrocardiograph is one of the inventions that have been put to uses beyond their capacity by some physicians. For this reason it has been deemed advisable to discuss briefly, with the aid of a few diagrams, the elements of the theory of electrocardiography before discussing the place of the instrument in clinical medicine.

THE GENESIS OF TISSUE CURRENTS

There is now a large body of evidence to show that resting muscle cells, including those of the heart, are in a state of electrical polarization at their surfaces. The negative pole is on the inside and the positive pole is on the outside of the cell surface, the area of this bipole being the total cell surface.

The Injured Cell.—When two electrodes are placed on such a resting cell, no deflection can be detected by a galvanometer, the record obtained being a horizontal line, as illustrated in diagram 1 of figure 1. If one of the electrodes is placed on an injured region in which the polarized state has disappeared temporarily, a deflection will occur in the galvanometer. The new level will be maintained until the polarized state is restored in the injured area. The time record will show a horizontal line, which can be restored to its previous level by introducing an appropriate countercurrent in the circuit, as shown by diagram 2 of figure 1. The current of injury flows, and a difference of potential in the two electrodes is created because the negative charge on the inside of the cell surface is in free communication, by way of the injured region, with the positive charge on the outside of the cell surface.

The Genesis of the Monoplasic Action Current.—If such an injured cell is stimulated and the recording electrodes are placed as before, one on an uninjured and the other on the injured region, a monophasic action current will be recorded, such as is depicted in diagram 3 of figure 1. The monophasic curve shows the changes occurring in the uninjured region. The abrupt rise of the curve results from the depolarization of this region as it is activated; the decline, which is more gradual than the rise, is due to the repolarization of this region. In the heart muscle the curve shows a protracted summit because the depolarized state continues for a time. The direction of the monophasic action current is determined by the side of the galvanometer into which the electrode on the uninjured region is led. For example, the monophasic curve in diagram 4 of figure 1 is the mirror image of the one in diagram 3, because the positions of the injured and uninjured areas have been reversed.

Genesis of the Diphasic Action Current.—The curve recorded from an activated uninjured cell is different from that of an activated injured one in that the action current in the former is diphasic instead of monophasic. The diphasic action current, as shown in diagram 5 of figure 1, has a larger and more angular initial phase than final phase. In the curve from the heart, the two phases are separated by an appreciable interval. The contour of the diphasic action current depends on the relative position of the stimulating and recording electrodes. For example, the diphasic action current obtained when the stimulating electrodes are applied at one end of the cell is the mirror image of that obtained when they are applied at the opposite end (fig. 1, diagram 5 *A* and *B*).

Each of the two electrodes used in obtaining the diphasic curve gives a monophasic curve opposite in direction to that given by the other. The diphasic curve is therefore the algebraic sum of the oppositely directed monophasic curves recorded by each electrode. The resultant curve depends on the differences in amplitude, contour and duration of the two monophasic curves and on the asynchronism of their onset. A few of the simpler combinations of two monophasic curves are shown in figure 2. If the two monophasic curves have the same contour, amplitude and duration, and start simultaneously, they will neutralize one another, since, as already mentioned, they are opposite in direction. As shown in diagram 1 of figure 2, no deflection will be recorded in the galvanometer. If the two monophasic curves have the same duration, amplitude and contour but start asynchronously, a diphasic curve will be recorded; viz., diagram 2 of figure 2. The direction of the diphasic curve will depend on which monophasic curve starts first; and the amplitude and span of its two

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† From the Cardiovascular Laboratory, Department of Physiology, Nelson Morris Institute, and the Heart Station, Michael Reese Hospital.
* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.
* Read before the Section on Pathology and Physiology, at the Eighty-Second Annual Session of the American Medical Association at Philadelphia, June 10, 1931.

phases will vary in the same direction as the asynchrony of the start of the two monophasic curves.

If the duration of the two monophasic curves is not the same, the final deflection of the diphasic curve will vary from the standard pattern. Thus it may be excessively deep or shallow. If the monophasic curve which starts later has the shorter duration, the final phase of the diphasic curve will be in the same direction as the initial phase, as illustrated by diagram 3 of figure 2.

Occasionally, monophasic curves are obtained with two recording electrodes on uninjured regions. This occurs if the two monophasic curves from the individual electrodes are synchronous, equal in duration but different in amplitude, as shown in diagram 4, figure 2.

GENESIS OF THE CURRENTS RECORDED BY INDIRECT LEADS

The foregoing exposition of the genesis of the diphasic action current obtained by direct leads applies also to the electrocardiogram obtained by indirect leads with certain reservations. In direct leads the greatest influence is exerted by the region beneath the electrodes; in indirect leads the disparity in influence of various regions is absent or minimized. Consequently, with indirect leads we deal not only with the changes in polarization of individual regions but also, and to a greater extent, with the spread of depolarization and repolarization throughout the heart. The record obtained in indirect leads is therefore to be regarded as the algebraic resultant of the electrical stresses occurring from moment to moment oriented in the direction of the lead employed. These stresses occur simultaneously in distant regions since the impulse invades these distant regions simultaneously. On this basis the active heart in situ can be considered as equivalent to an electric battery placed in a relatively large mass of a conducting medium, a battery which varies in potential and in the position of its poles during the cardiac cycle.

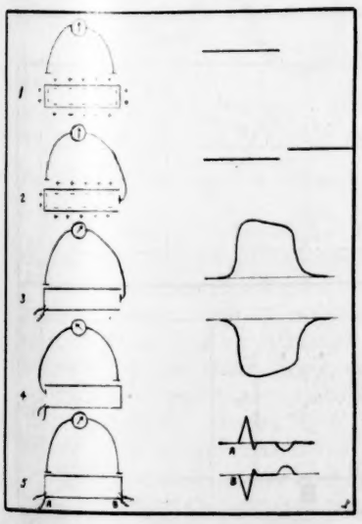

Fig. 1.—Genesis of tissue currents.

The conducting medium, the body, is not without influence on the current recorded by the galvanometer.

The resultant battery of the heart has been assumed for a long time to be determined by the geometric location and mass of the active and inactive regions. Recently, however, primarily as a result of the work of Lewis,[1] Craib,[2] and Wilson,[3] it has become clear that each electrical stress can be considered as a bipole at the junction of an active and an inactive region, with its positive pole in the polarized and its negative pole in the depolarized regions, and that this bipole advances with the spread of depolarization and repolarization. It is assumed that these bipoles can be summated to give the resultant battery. I[4] have already expressed my view as to the manner in which this is brought about.

However, there has been a tendency to emphasize the direction of the bipoles and of their movements to the exclusion of their location. Figure 3 is a diagram illustrating the opposite effects obtained in a galvanometer when bipoles moving in the same direction are located differently in relation to the recording electrodes. The geometric distribution of the bipoles cannot be ignored in calculating the resultant battery of the heart; nor can the location of the resultant battery be ignored in analyzing its effect on the distant leads. Thus it cannot be assumed, as has been done by Wilson and others, that the resultant at any moment is simply a vector sum of the various bipole vectors present at that moment. Similarly, the effect of the resultant battery on the standard three leads cannot be so computed. The triangle formed by the three leads is not equilateral, nor is the resultant battery in the center of the triangle, as shown in diagram *E* of figure 4. As a matter of fact the heart is cephalad and to the left of the center of the body and nearest to the left arm electrode.

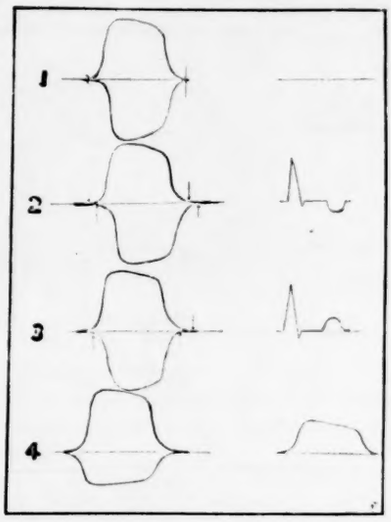

Fig. 2.—Simple combinations of monophasic curves.

In diagrams *E*, *F*, *G* and *H* of figure 4 are shown three of the four ways in which the resultant battery may change: 1. The battery may change its location in relation to the leads with a shift of the heart's position, as shown by comparing diagrams *E* and *F*. 2. The direction of the battery may be altered by rotation of the heart, as shown by comparing diagrams *E* and *G*. 3. The distance between the poles may vary, depending on the summation of the bipoles, as shown by comparing diagrams *E* and *H*. 4. The size of the poles and the magnitude of the vector may vary.

Furthermore, sight must not be lost of the fact that the three standard leads determine a plane, while the resultant battery has three dimensions. Thus, a change in the magnitude of the manifest "potential" in the frontal plane may be due to a change in the magnitude of the true "potential" (compare *A* and *B* of figure 4), or to a change in its angle in the anteroposterior plane (compare *A* and *C* of figure 4). An analysis of the changes in position of the heart is of the utmost importance in interpreting the recorded electrocardiogram, as this discussion has shown.

THE GENESIS OF THE DEFLECTIONS OF THE NORMAL ELECTROCARDIOGRAM

On the basis of the foregoing presentation, the genesis of the various waves of the electrocardiogram may

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2. Craib, W. H.: The Electrocardiogram, Medical Research Council, Special Report Series 147, London, His Majesty's Stat. Off., 1930.
3. Wilson, F. N.: The Distribution of the Potential Differences Produced by the Heart Beat Within the Body and at Its Surface, Am. Heart J. **5**: 599, (June) 1930.
4. Katz, L. N.: The Significance of the T Wave in the Electrogram and Electrocardiogram, Physiol. Rev. **8**: 447 (Oct.) 1928.

now be briefly discussed. In figure 5 is shown diagramatically a transverse section of the heart together with an idealized electrocardiogram. The spatial relations of the normal spread of the impulse is shown by the diagram of the heart. The special cardiac tissue, viz., the sinus node, the auriculoventricular node, the common bundle, the bundle branches and their arborization are shown in black. The heavy arrows show the pathways of invasion of the auricles and the ventricles; the lighter arrows show the pathway of retreat. The electrocardiogram pictures the time relations of the spread of depolarization and repolarization in the normal heart. The P wave, the Q-R-S complex, and the T wave mark, respectively, the invasion of the auricles, the invasion of the ventricles, and the retreat of activity in the ventricles. The span of each of these complexes gives the time of invasion or retreat; the amplitude and contour give an expression of the unbalanced stresses from moment to moment during these periods. The fact that the T wave is upright in the normal electrocardiogram indicates that the duration of the depolarized state is not equal in all parts of the ventricle, so that the pathway of retreat is different from that of the invasion. The inversion of the T wave when the major deflection of Q-R-S is upright indicates either that the duration of the depolarized state in the various fractions of the heart has become more nearly equal or that the period of invasion has been prolonged sufficiently to nullify the unequal duration of activity.

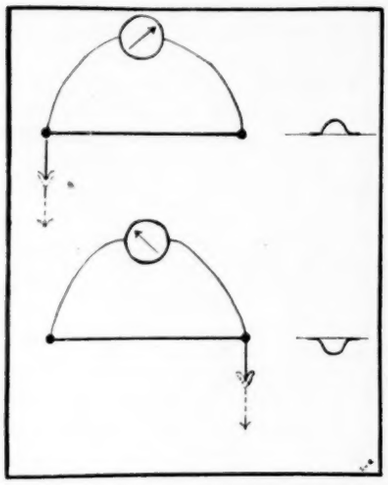

Fig. 3.—Location of bipoles moving in same direction determine galvanometer deflection.

The period from the end of P to the onset of Q-R-S is a period of retreat in the auricles; the presence of unbalanced electrical stresses ordinarily makes the level of this period deviate from the iso-electric. The P-R interval, from the beginning of P to the beginning of Q-R-S, marks the conduction interval from the sinus node to the ventricles. The S-T interval from the end of S to the beginning of T is a period of possession of the ventricle by the depolarized state. Some repolarization starts at this time, so that small deviations in the level of this period occur normally; large deviations, however, indicate that large regions of the ventricles fail to contribute their usual electrical stresses because of injury.

There is an erroneous impression, current among clinicians, that the electrocardiogram gives evidence of the magnitude of the heart's contraction. There is nothing in the electrocardiogram that gives directly any indication of the force of the heart or of its various chambers. The electrocardiogram is a record only of the site of impulse initiation and of the spread and retreat of activity in the sense of depolarization and repolarization; it detects the presence of freshly injured regions, but contraction per se makes no record. The magnitude of contraction of the ventricles is the summation of the magnitude of contraction of all the fractions, with little loss in summation, while the magnitude of the electrical deflections is the summation of the electrical stresses in these fractions, with a tremendous loss in summation.

PLACE OF THE ELECTROCARDIOGRAPH IN CLINICAL PRACTICE

What is the place of the electrocardiograph in clinical medicine? It is not, as some believe, the final authority on all ailments of the heart, nor is it, as others hold, an unpractical toy for the curious, an impressive hoodwink for the unscrupulous, or a good investment for the mercenary. The value of the electrocardiogram in elucidating the applied physiology of the heart in the last thirty years has been extraordinary. It is still useful in many ways in clinical medicine; viz., (1) in determining the nature of cardiac irregularities, (2) in estimating myocardial involvement, (3) in locating valvular or congenital lesions, and (4) in aiding the management of cardiac cases. Too much must not be expected from the electrocardiograph. While the electrocardiograph has a definite place in clinical practice, it cannot replace the customary methods of making a diagnosis, as some physicians have imagined.

Disturbances in Cardiac Mechanism.—The electrocardiogram is the final court of authority in cardiac irregularities. Many times, the diagnosis can be made by physical examination and by certain tests without any instrument. At other times the polygraph, which has undeservedly fallen out of favor, will make clear the nature of the irregularity. But certainty is possible only by employing the electrocardiograph; and even then, as in autopsies, the diagnosis may occasionally fail to be clear.

We are interested in determining the disturbance in cardiac mechanism, because the prognosis and management often depend on the nature of the disturbance.

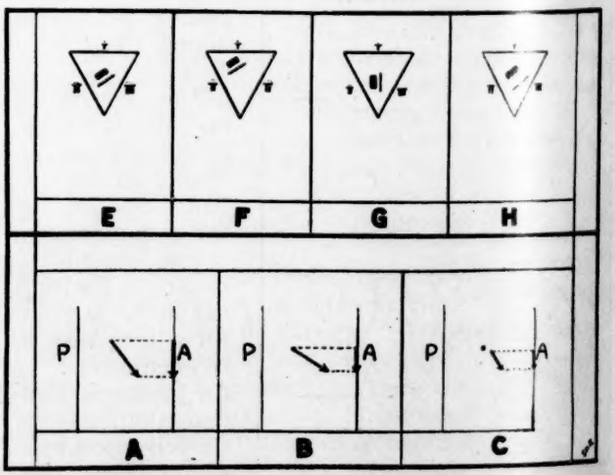

Fig. 4.—Influences affecting resultant battery and its frontal projection.

Thus the significance of extrasystole is different from that of auricular fibrillation. Under the same circumstances the latter is more likely to be serious, because experience has shown that it is less frequently present, in its chronic form, with normal than with diseased hearts. It is also more serious to have extrasystoles from many foci than from one or two, since the former condition is more often associated with disease of the heart and more apt to lead to fibrillation. Ventricular paroxysmal tachycardia is more serious than auricular

or nodal, since it is more apt to lead to ventricular fibrillation. It also causes a greater handicap to the circulation by making the heart beat less synergically and therefore less efficiently. More significant still is the difference in outlook between auricular fibrillation and sinus arrhythmia, or between either of these two and partial auriculoventricular block with dropped beats. In complete heart block the location of the idioventricular rhythm is important. If it is in the common bundle there is less likelihood of ultimate permanent cessation than if it is located in the arborization; and the differentiation can be made only with the electrocardiogram. The treatment of auricular fibrillation is different from that of partial heart block since quinidine and digitalis benefit the former and may be harmful in block in that they may cause complete block with its risks. It is difficult, often impossible, without the electrocardiogram to demonstrate partial block of the auriculoventricular type when this block consists of prolongation of the P-R interval. Complete auriculoventricular block, partial 2:1 auriculoventricular block, and sinus bradycardia often can be differentiated only with the electrocardiogram.

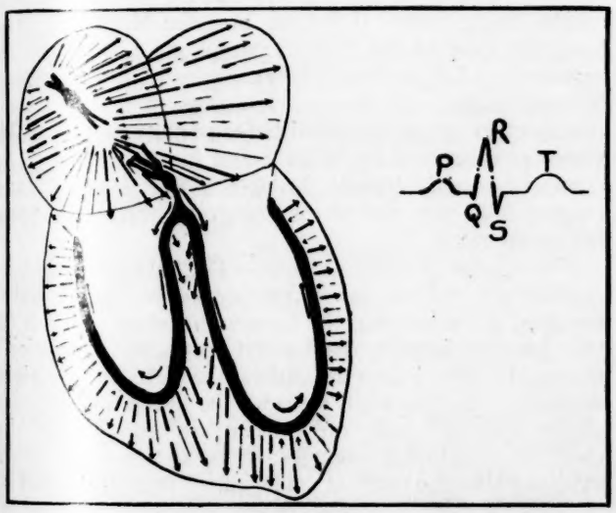

Fig. 5.—Spread and retreat of activation and idealized electrocardiogram.

Myocardial Involvement.—The evidence of myocardial involvement in the electrocardiogram is due to disturbances in conduction or to fresh injuries. Changes in the P wave, such as notching, prolongation of the span, and marked elevation of the amplitude, may be evidence of auricular myocardial involvement. The evidence of ventricular myocardial involvement consists of prolongation of the Q-R-S complex up to and beyond 0.12 second, extensive slurring or notching of the Q-R-S complex, marked depression of the amplitude of the Q-R-S complex, noticeable deviations of the level of the S-T interval, inversion or flattening of the T wave, bizarre appearance of the entire ventricular complex, and evidence of auriculoventricular block. When the changes are slight, it is often difficult to estimate whether the change in configuration is within normal limits or not. Furthermore, each age has its own norm, and a certain degree of myocardial fibrosis and coronary sclerosis may be viewed as natural or normal for the older individual. For these reasons, it is often impossible to make a conclusive diagnosis of myocardial involvement.

The amount of abnormality of the electrocardiogram is not parallel to the amount of heart damage. The heart, like the brain, has many silent areas, extensive involvement of which may lead to little or no change. On the other hand, slight localized lesions in one of the bundle branches will lead to extensive alteration of the electrocardiogram. The evidence of myocardial involvement in the electrocardiogram must always be

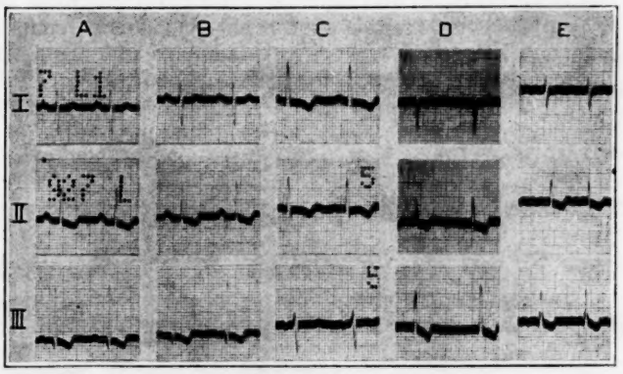

Fig. 6.—Influence of digitalis bodies on T wave.

correlated with the clinical findings. In only a few instances is the information of significance without such reference; viz., in recent coronary occlusion, in overdigitalization and in bundle branch block. In the first two, the nature of the involvement is shown; in the third there is evidence that one or other ventricle is less synergically stimulated and therefore pumps less efficiently. So-called low voltage does not always indicate myocardial involvement. It may result from a decrease in the resistance of the body shunts or from a more horizontal position of the resultant battery of the heart in the anteroposterior plane.

The electrocardiogram does not give any information as to the etiology of myocardial involvement, except in the peculiar changes caused by digitalis, by recent coronary occlusion or by acute pericardial effusion. Even in these conditions it may give misinformation. The electrocardiogram records changes in the functional properties of the heart; it registers anatomic changes only when they disturb these functions of the heart. There is nothing in the electrocardiogram to show whether the involvement is organic, toxic, or the

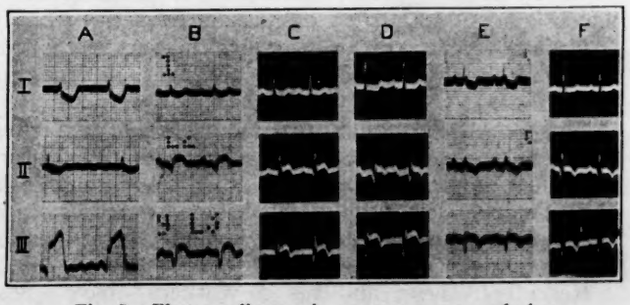

Fig. 7.—Electrocardiogram in recent coronary occlusion

result of ischemia; the clinical findings must determine the cause.

Digitalis bodies may cause a typical type of T wave inversion as shown in segments *A, B, C, D* and *E* of figure 6. They may produce other changes besides this; in fact, almost any type of electrocardiogram can be produced by digitalis. The "digitalis" T wave occasionally occurs in other conditions, and, on the other hand, digitalis intoxication often fails to cause the T wave change. Reliance should therefore not be

placed on T wave changes alone in detecting digitalis intoxication.

A recent coronary occlusion produces a whole series of changes, such as shown in figures 7 and 8; viz., a monophasic curve (segment *A*); a marked deviation of the S-T level above or below the iso-electric level without prolongation of the Q-R-S deflection (segments *B, C, D, E* and *G*), occasionally in the form of a high take-off (segments *C* and *D*); a cove-shaped inverted T, peaked and with rounded shoulders whose convexities are upward (segments *C, D, E, F, G, H, I, J, K*); a large Q wave (segments *C, D, F, H* and *I*),

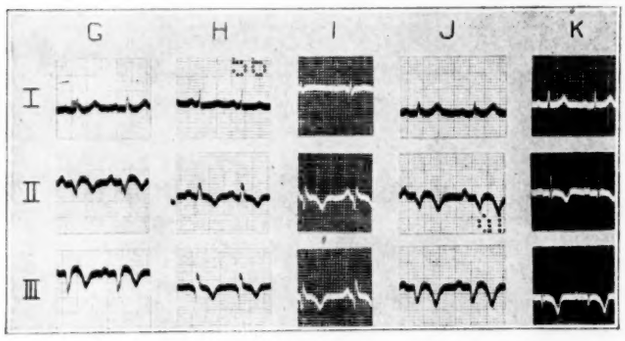

Fig. 8.—Electrocardiogram in recent coronary occlusion.

or various combinations. The deep T wave may sometimes dominate the electrocardiogram, as in segments *G, J* and *K*.

By following the rapidity of the changes in the electrocardiogram, some idea of the rate of recovery or progress of a case of coronary occlusion can be reached. In all such cases a series of records should be taken for this reason. More conclusive evidence of a coronary occlusion may be obtained from such a series than from a single record alone. Coronary occlusion may lead to nonspecific changes in the electrocardiogram; viz., "low voltage," bundle branch block and various arrhythmias, such as extrasystole, paroxysmal tachycardia and fibrillation. Occasionally, clear-cut cases of coronary occlusion occur without any noticeable change in the electrocardiogram. On the other hand, any condition of myocardial ischemia besides coronary thrombosis may lead to so-called coronary deviation of the Q-R-S-T, the most common form of which is acute pericardial effusion.[5] Even in coronary occlusion, recent work[6] has shown that the changes are due in part to the decrease in the heart's pumping ability.

The occurrence of such striking and distinctive changes in coronary occlusion is important in differentiating atypical attacks of this condition from abdominal disease. It is, however, bad practice to ascribe to coronary occlusion an electrocardiogram showing minor changes.

Recently Wilson and his co-workers[7] have questioned the validity of the present method of localization of bundle branch block and ventricular extrasystoles. Many years ago, Fahr[8] raised the same question on other grounds. The general conception, which follows the lead of Lewis,[9] is that an inverted major initial deflection in lead III indicates left preponderance, right bundle branch block or left ventricular extrasystole, while inversion of the major initial deflection in lead I indicates right preponderance, left bundle branch block or right ventricular extrasystole. While Wilson and his co-workers do not question the diagnosis of preponderance, they claim that, in the past, in the diagnosis of the location of bundle branch block and ventricular extrasystoles, right and left have been reversed. They point out that the heart in man differs from that of the dog in that the left ventricle is above rather than to the left of the right ventricle. In favor of this belief is the observation that so-called right bundle branch block occurs more frequently in the electrocardiogram while left bundle branch block occurs more frequently at autopsy. Oppenheimer and Rothschild[10] have shown in a number of cases that at autopsy the left bundle was involved and yet the electrocardiogram showed evidence of so-called right bundle branch block. It seems to me that some of this discrepancy may be due to the frequency of left ventricular preponderance in these cases. The preponderance will determine the direction of the major initial deflection and the block will prolong the span of the Q-R-S complex. Cases such as reported by Luten[11] may be examples of the transition between these two stages. It seems to me that confirmatory evidence is needed before finally accepting the views put forward by Wilson and his co-workers. In connection with bundle branch block, I would say emphatically that the terms levogram and dextrogram are misnomers.

Ventricular Preponderance.—The aid the electrocardiogram offers in determining the heart valve involved or in locating the congenital lesion depends on the greater hypertrophy (and probably dilatation) caused by the lesion in either the left or the right ventricle. As is well known, the diagnosis of preponderance is made only when, in addition to the electrocardiographic changes, it is known from other evidence that the heart is enlarged.[12] In mitral stenosis,

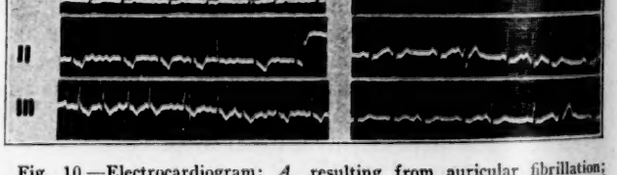

Fig. 10.—Electrocardiogram: *A*, resulting from auricular fibrillation; *B*, resulting from interspersion among the sinus beats of extrasystoles of many focal origins.

in congenital pulmonary stenosis, patent ductus arteriosus or patent interventricular septum, in emphysema and in arteriosclerosis of the pulmonary arteries, the right ventricle is ordinarily enlarged more than the left, causing an inversion of the major initial deflection

5. Katz, L. N.; Feil, H. S., and Scott, R. W.: The Electrocardiogram in Pericardial Effusion, Am. Heart J. **5**: 78 (Oct.) 1929.

6. Feil, H. S.; Katz, L. N.; Moore, R. A., and Scott, R. W.: The Electrocardiographic Changes Produced by Myocardial Ischemia, Am. Heart J. **6**: 522 (April) 1931. Katz, L. N., and Wallace, A. W.: The Rôle of Cardiac Ischemia in Producing R-T Deviations in the Electrocardiogram, Am. J. M. Sc. **181**: 836 (June) 1931.

7. Barker, P. S.; Macleod, A. G., and Alexander, J.: The Excitatory Process Observed in the Exposed Human Heart, Am. Heart J. **5**: 720 (Aug.) 1930. Wilson, F. N.: Personal communicaton to the author.

8. Fahr, George: An Analysis of the Spread of the Excitation Wave in the Human Ventricle, Arch. Int. Med. **25**: 146 (Feb.) 1920.

9. Lewis, Thomas: The Mechanism and Graphic Registrations of the Heart Beat, ed. 2, London, Shaw & Sons, 1925, p. 211.

10. Oppenheimer, B. S., and Rothschild, M. A.: Electrocardiographic Changes Associated with Myocardial Involvement, J. A. M. A. **69**: 429 (Aug. 11) 1917.

11. Luten, D., and Grove, E.: Incidence and Significance of Electrocardiograms Showing Features of Left Axis Deviation and Q-R-S of Normal Duration with Inverted T_1 and Upright T_3, Am. Heart J. **4**: 431 (April) 1929.

12. Wilson, F. N., and Herrmann, G. R.: An Experimental Study of Incomplete Bundle Branch Block and of the Refractory Period of the Heart of the Dog, Heart **8**: 229 (May) 1921.

in lead I, as in segments *A, B, D* and *E* of figure 6. In aortic insufficiency, in aortic stenosis, in congenital atresia of the aorta, in hypertension, in hyperthyroidism, and usually in coronary sclerosis, the left ventricle is enlarged more than the right, producing an inversion of the major initial deflection in lead III, as in segment *C* of figure 6.

Management.—The electrocardiogram aids in treatment by making clear the nature of the arrhythmia. It helps to decide the progress of the case in coronary occlusion, as was previously mentioned. It shows the stage of digitalization by the inversion of the T wave and by evidence of block. Many times, the conversion of auricular fibrillation to normal mechanism may be missed because the digitalis or quinidine used has induced so many extrasystoles that clinically the impression from examination of the pulse and heart may be that the fibrillation is still present. The inadvisability of continuing medication is obvious. Thus, segment *A* in figure 10 shows the irregularity of the pulse due to auricular fibrillation, and segment *B* the irregularity, which is as marked as in *A*, owing to the interspersion among the sinus beats of extrasystoles of many focal origins. In such cases, the electrocardiogram alone gives the information as to when the medication should be stopped.

This brief outline of the status of the electrocardiograph, it is hoped, has shown the dependence of its clinical value on the knowledge of the genesis of its records. The discussion, it is further hoped, has served in demonstrating the close interrelation between theory, so called, and practice which can also be shown in other fields of clinical medicine.

CARDIAC PAIN *

DON C. SUTTON, M.D.
CHICAGO

Heberden, by his classic description of angina pectoris, called attention to its importance. Hunter, Jenner, Parry and others early recognized the fact that fatal attacks of precordial pain were usually associated with arteriosclerosis of the coronary arteries. Later, Blackhall, See, and Huchard,[1] believing the pain of angina pectoris to be due to decreased blood supply to the heart muscle, advanced the theory of spasm of the coronary arteries to explain those cases in which no obvious arteriosclerotic changes were observed.

By 1899, Huchard was able to collect eighty theories as to the cause of angina pectoris. Of these, only three are now recognized as possible causes of cardiac pain:

1. Cardiac pain is due to decreased blood flow to a part or all of the myocardium, which is caused either by arteriosclerotic narrowing or by a temporary spasm of the coronary arteries.

2. Cardiac pain is due to the stretching of the acutely or chronically inflamed aorta or aortic ring, incident to exercise, according to Albutt, Wenckebach and Vaquez.

3. According to Mackenzie,[2] cardiac pain is due to exhaustion of the heart muscle, either from defective blood supply through narrowing of the coronary arteries or from extensive damage to the heart muscle from other causes.

Experimental study of cardiac pain has appeared impossible, because general anesthesia is necessary before approach to the heart or coronary arteries can be made. Singer[3] has studied the pain response to coronary manipulation under light morphine anesthesia. In his experiments the chest was kept open and continuous intratracheal artificial respiration was employed. He assumed that stimulation of respiration was an index of pain. It has since been shown, however, that respiratory stimulation during manipulation of the heart, coronary arteries, or aorta may occur without pain.

By employing methods previously reported,[4] it has been possible to study the pericardium, the myocardium, the coronary arteries and the aorta in unanesthetized dogs, with regard to the type of stimulus required to evoke the pain response and the location of nerve endings for pain, and by such experiments in the dog and monkey (*Macacus phenur*) the following observations have been made:

Pricking or pinching of the parietal pericardium elicits a pain response; stretching or pulling does not. Neither mechanical nor chemical irritation of the visceral pericardium evokes a pain response.

Stretching of the ventricular walls or local mechanical or chemical stimulation of the myocardium fails to produce a pain response.

Temporary partial or complete closure of either a coronary artery or vein or of both invariably elicits a pain response. This is true of both the right and the left coronary arteries and their branches. This pain response has been shown to be due most probably to the decreased flow of blood to the myocardium (ischemia or anoxemia). The observations that my associates and I made indicated that the severity of the pain varies with the amount of closure of the artery and, to a greater degree, with the size of the arterial branch constricted. The pathway of the pain response is through nerve fibers that accompany the coronary arteries and lie in the adventitia of the arteries. In the dog, the pain response from the heart passes to the central nervous system through the left sympathetic chain of ganglions. The pain pathway may be severed by destroying or narcotizing the nerve fibers in the perivascular tissue of the obstructed coronary vessel or by the removal of the stellate ganglion or of the annulus of Vieussens.

Under procaine anesthesia, a dilator, as previously described,[5] may be passed through the left internal carotid artery into the ascending aorta or farther downward into the aortic ring. Stretching of either the normal aorta or the aortic ring fails to produce pain.

In view of the theory that cardiac pain arises from the stretching of an acutely or chronically inflamed aorta, and in view of the possibility that inflammation may "sensitize nerve endings," I am now conducting experiments in which inflammation of the aorta is produced prior to experimental dilation or stretching. Preliminary observations indicate that pain does not result from stretching an injured aorta.

Experimentally, a pain response has been observed to occur in the dog and monkey only when the blood flow

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* Read before the Section on Pathology and Physiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Huchard, Henri: Traité clinique des maladies du coeur, et de l'aorte, ed. 3, Paris, Gaston Doin, 1899.

2. Mackenzie, James: Diseases of the Heart, London, Oxford University Press, 1918.

3. Singer, R.: Experiments on the Sensibility of the Heart and Larger Vessels to Pain and Relation to Angina Pectoris, Wien. Arch. f. inn. Med. **12**: 192-208 (Feb.) 1926.

4. Sutton, D. C., and King, W. B.: Physiological Effects of Temporary Occlusion of the Coronary Vessels, Proc. Soc. Exper. Biol. & Med. **25**: 842 (June) 1928. Sutton, D. C.: Studies of the Mechanism of the Production of Cardiac Pain, Tr. Inst. Med. Chicago, February, 1929. Sutton, D. C., and Lueth, H. C.: Pain, Arch. Int. Med. **45**: 827-867 (June) 1930.

5. Sutton (footnote 4). Sutton and Leuth (footnote 4).

to the myocardium is diminished or stopped. On the basis of my observations I conclude that experimentally the pain response is caused by either ischemia or anoxemia. A great mass of clinicopathologic evidence further substantiates this conclusion.

There are several ways in which such an ischemia or anoxemia may occur in the heart of man:

NORMAL HEART

In the normal heart with normal coronary arteries, overexertion may induce a relatively insufficient blood supply to or anoxemia of the heart muscle, which explains the painful precordial sensations just before "second wind" or on marked exertion. In the very rapidly beating hearts of exophthalmic goiter, paroxysmal tachycardia or auricular flutter, cardiac pain may occur on the same basis. This may also be the explanation of the occurrence of cardiac pain in severe anemia, especially pernicious anemia.

Such a case was observed in a woman, aged 40, who gave no previous history of cardiac pain. She was seen during the course of an acute aplastic anemia. When the total number of red blood cells fell below 1,500,000, turning in bed produced severe precordial pain, which was relieved by glyceryl trinitrate. After a blood transfusion the attacks disappeared, to recur when the number of red blood cells again fell below 1,500,000. The same sequence of events followed a second transfusion. Necropsy showed normal coronary arteries.

SPASM OF THE CORONARY ARTERIES

There is much conclusive evidence of the existence of a dilator mechanism in the coronary arteries; on the other hand, the existence of a constrictor mechanism is doubtful. Even though the possibility of a spasm of the coronary arteries has neither been proved nor disproved, its presence is not essential for an explanation of the coronary artery origin of cardiac pain. A slight sclerosis or occlusion of a single branch, in the absence of a functional anastomosis with neighboring branches, may be sufficient to reduce the blood flow to a portion of the myocardium.

Careful microscopic studies [6] have shown the frequency of sclerosis in the smaller branches. It has also been observed that, in otherwise normal arteries, sufficient sclerosis often exists about the orifices of the smaller branches to occlude definitely the ostia, functionally at least.

SCLEROSIS OF THE CORONARY ARTERIES

The narrowing of a single branch may produce a relative anoxemia to a portion of the myocardium during exercise. On the other hand, extensive arteriosclerosis of the coronary arteries may be present without pain. This absence of the pain appears to be due to an extensive anastomosis between the branches of the coronary arteries.

Complete closure of a coronary artery or of one of the branches by an embolus or a thrombus produces pain of extreme severity with a duration of several hours or even days. After complete infarction with tissue necrosis, the pain ceases. Individuals who have had attacks of angina pectoris preceding cardiac infarction may afterward be completely relieved. This may be explained by the closure of the single artery, which formerly was sufficiently narrowed to cause the cardiac pain. In those cases in which anginal attacks continue after closure of an arterial branch, there are other arteries, only partially occluded, which cause the continuance of the pain.

Extensive studies of the pharmacologic action of drugs, especially the nitrites and the theobromine derivatives, on coronary flow, have further served to explain the action of these drugs in clinical cardiac pain. Attacks of angina pectoris are in the vast majority of cases immediately relieved by administration of glyceryl trinitrate or amyl nitrite. This relief is due to the prompt dilatation of all coronary arteries and especially to the increased flow through the collateral anastomosing arteries.

In cases of extreme calcification of the coronary arteries, the nitrites may fail to act because the arteries can no longer be dilated. In complete closure of a branch of a coronary artery with myocardial infarction, the nitrites fail entirely to relieve the pain. While the theobromine compounds fail to relieve an attack of angina pectoris because of their relatively slow action, continuous administration greatly increases coronary flow and serves to protect against attacks.

REFERENCE OF CARDIAC PAIN

In the dog, experimental evidence shows that the pain fibers from the heart are carried in the left sympathetic chain. Operative evidence in man shows that the pain fibers are also mainly radiated by the left sympathetic ganglions, although occasionally they may also be in the right sympathetic ganglions. As shown by alcohol injections, pain is carried from the spinal cord to the peripheral nerves, mainly through the first to the fifth dorsal nerves.

Clinically, the pain of angina pectoris may vary from exceedingly slight to extreme viselike constriction of the chest. It may be localized over the sternum, usually the middle or upper third, more rarely the lower third; or it may be localized over the precordium, usually over the fourth and fifth intercostal spaces. The usual distribution of referred pain is that described by Mackenzie; i. e., to the left shoulder and axilla and down the inner aspect of the left arm, elbow, wrist, and to the tip of the little finger. It may be referred to only a part of this area, as, for instance, only the elbow or little finger. Again, it may be referred to the posterior and lateral aspect of the left side of the neck and to the left lower jaw. Very rarely, pain may be referred to both arms, and yet more rarely, to the right arm only.

The pain of angina pectoris is also described as being referred to the abdomen. These unusual points of reference of pain, the right arm and the abdomen, are much more frequent in myocardial infarction than in true angina pectoris; in fact, in myocardial infarction the pain is frequently referred only to the abdomen, thus simulating acute surgical lesions of the upper abdominal viscera.

Attacks of angina pectoris and myocardial infarction may rarely occur without the presence of pain. Extreme dyspnea, disproportionate to the physical findings, is the only evidence of the attack. Experimentally, closure of the coronary artery causes paroxysmal dyspnea.[7]

CONCLUSION

In consideration of the facts stated, cardiac pain is caused by ischemia or anoxemia of the heart muscle.

30 North Michigan Avenue.

6. Sutton, D. C., and Brandes, W. W.: Arteriosclerosis of the Coronary Arteries: A Clinicopathological Study, J. Lab. & Clin. Med. **16**: 1185 (Sept.) 1931.

7. Singer (footnote 3). Sutton and Lueth (footnote 4).

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. EYSTER, BAZETT, WIGGERS, KATZ AND SUTTON

DR. A. C. IVY, Chicago: There is one question that I should like to ask Dr. Eyster. A number of clinicians have come to me with the question of why, when venous section is apparently indicated, some patients respond favorably and others do not. Are there any criteria on which one might predict the response of different patients to venesection?

DR. WALLACE M. YATER, Washington, D. C.: I should like to ask Dr. Wiggers whether the increase in pulse pressure is proportionate to the size of the leak, or whether aortic regurgitation may occur without any increase in pulse pressure. I have recently seen two patients with the typical murmur of aortic regurgitation and the aortic type of cardiac enlargement in whom there was not an increase in pulse pressure. In one case the systolic pressure was 160 and the diastolic 120. Neither patient showed evidence of syphilis or of rheumatic endocarditis. I have seen other patients with this picture. These cases have been called aortic regurgitation due to arteriosclerosis of the aortic orifice or simple dilatation, but these points have never been satisfactorily settled. There seems to be little doubt, however, that there is actually an insufficiency of the aortic valves. If the increase in pulse pressure is not proportionate to the size of the leak, when does it begin after the leak develops and what determines the degree of increase?

DR. J. F. BISHOP, JR., New York: I should like to ask Dr. Sutton what the criteria were that he used in determining the pain response of dogs. He mentioned increased respiration as being one. What were the others and how could the pain response in dogs be compared to a human response?

DR. A. G. SULLIVAN, Hot Springs National Park, Ark.: I should like to ask Dr. Katz the significance of an increased P-R interval or so-called delayed conduction. Is there any evidence that this delay is in the auriculoventricular node and isn't it assuming a great deal to assume that this delay is in the node?

DR. I. C. STEVENS, Cleveland: Dr. Katz stated that the electrocardiogram does not give any evidence of the force exerted by the contracting heart. I should like to ask whether heart muscle differs in this respect from striated muscle. As Dr. Katz is aware, in the study of the problem of the plurisegmental innervation of striated muscle the magnitude of the action current, as measured by the excursion of the string galvanometer, has been assumed by such competent experimenters as Samojloff and Fulton to be directly proportional to the tension developed in the muscle. Furthermore, in justification of this assumption the measurement of tension by this method correlates well with the measurement of tension by other methods not electrical in nature.

DR. J. A. E. EYSTER, Madison, Wis.: With regard to Dr. Ivy's question as to determining in advance in an individual case the effectiveness of venesection, I regret to say that I do not know of any means by which this can be done. Venesection always causes a fall of venous pressure in decompensation. In favorable cases it remains low; in unfavorable cases it gradually rises over a period of several hours to its approximate original level. The question as to the effectiveness of venesection appears to depend on whether or not there is sufficient recovery possibility remaining in the heart muscle to enable it to benefit by the temporarily reduced load. If so, there may be a permanent restoration of the condition in which the load remains within the capacity of normal response of the heart muscle and compensation is regained. If on the other hand the muscle is damaged to the extent that little or no recovery occurs during the period of reduced load, the original situation returns. In my experience a second venesection is never effective in the latter case. I have not noted any relation to heart rate as suggested by Dr. Katz's question. The fact that some workers have found cardiac dilatation to follow experimental aortic regurgitation and others not, I believe can be explained on the time at which the observation is made subsequent to the production of the lesion. A sudden increase in heart rate on the production of the lesion occurs and, as Dr. Wiggers stated, is probably the immediate means of compensation. At this time the heart may not be dilated, but in my experience every case may be shown by the x-rays to be dilated within a few hours after the lesion is produced. Dr. Katz stated that no conclusions can be drawn from the T wave of the electrocardiogram as to the extent of cardiac systole. With this I entirely agree, but I feel that there may be nevertheless a relation between contraction of cardiac muscle and the T wave, for which view there is experimental support. Under certain conditions a strip of cardiac muscle may show no visible or recordable contraction and give rise to an electromyogram with a normal R complex and with no T wave.

DR. J. F. FULTON, JR., New Haven, Conn.: I should like to ask Dr. Henderson whether he attributes the greater fall in blood pressure which occurs after spinal transection in the monkey (as compared with the lesser fall in cats and dogs) to the greater diminution in tonus of the skeletal musculature incident to the more profound spinal shock seen in this higher form. It seems to me a most suggestive conception since it allows one to correlate much more intimately than was possible before the activities of the tonic mechanism of the central nervous system with the tonic activity of the vasomotor system.

DR. L. N. KATZ, Chicago: With regard to the P-R interval indicating damage in the node alone, I don't believe one can make that assumption soundly, and I did not intend to give that impression. Damage to the common bundle, to the auriculoventricular node and to certain intra-auricular pathways can produce block. It is known that the heart tissues that have the slowest conduction are the auriculoventricular and the sinus nodes, so that when the damage is functional or toxic rather than organic, the chances are that this will affect the auriculoventricular node. In regard to Dr. Stevens' question, it is purely fortuitous that Fulton's results confirm those obtained by other methods. I cannot see how differences in electrical balance in two regions, which are additive algebraically, can summate in the same fashion as tension or contraction which in summation can be considered as all positive. There is little loss in mechanical summation by one fiber pulling against another, whereas in electrical balance there is a large loss by neutralization. Furthermore, Samojloff himself is one of the first to expound the interference theory just mentioned. The vast majority of investigators are agreed that there is no clear connection between the size of the Q-R-S complex and the magnitude of contraction. With regard to the T wave, there is just as good evidence coming from the laboratory to show that when the contraction disappears the electrical record also disappears. I believe the question of the genesis of the T wave is settled. At least one can assume that it is settled until somebody upsets the conception I have presented, which fits all the facts. In every change in the magnitude of contraction I can show as many cases of decreased T waves as increased T waves. For example, when the heart beats more feebly there are as many cases in which the T wave gets larger as there are cases in which it gets smaller. The Q wave has been recently used by Pardee as a diagnostic criterion for coronary occlusion. He assumes that when the Q wave is one fourth the size of the major initial deflection it points, like the cove-shaped T, to coronary occlusion. I have found Q waves occurring in other conditions besides coronary occlusion. As regards the relation of intraventricular block to bundle branch block, I grant that Eppinger and King have claimed that they used the clinical method of palpating the apex to detect bundle branch block. Equally competent physicians have failed to define such a split apex beat. Intraventricular block is the more inclusive term and includes bundle branch block. In regard to Dr. Eyster's comment about the single plane, it is quite true that some cases of clear-cut coronary occlusions occur without electrocardiographic changes. Many cases that show low voltage, bundle branch block and arrhythmias do not show the typical electrocardiogram. When the typical electrocardiogram occurs, particularly when a series of records show progressive changes, I think that 99 per cent of the time it is pathognomonic of a coronary occlusion.

DR. R. F. LEINBACH, Charlotte, N. C.: I should like to ask Dr. Sutton whether he accepts the theory of vascular spasm in the production of angina pectoris. Take for instance an individual who at the age of 80 years develops angina pectoris

and is unable to walk twenty steps without having to inhale amyl nitrite and then is put on theophylline ethylenediamine consistently over a course of a year or more and before the end of that time becomes entirely able to go up and down stairs and where she pleases. One seems to be driven to one of two alternatives—either to accept the idea of vascular spasm or the idea that theophylline ethylenediamine has a distinctly beneficial effect on the circulation of the heart.

DR. ALPHONSE MCMAHON, St. Louis: I should like to ask Dr. Sutton what his opinion is of the theory of pain in angina pectoris as related to the coronary dilatation instead of coronary spasm with the attack.

DR. F. C. WOOD, Philadelphia: The question arises as to whether the phenomena of cardio-aortic sensation in man are like those in dogs. There are two clinical observations which do not fit in with the belief that aortic distention and aortic valve rupture in man are painless: 1. Howard (*Canad. M. A. J.* **19**:12 [July] 1928) states that severe pain often accompanies rupture of an aortic valve leaflet in man. 2. There have been certain cases of dissecting aneurysm reported in the literature in which the formation of the aneurysm has been accompanied by severe pain, in the absence of external perforation of the aneurysm into the mediastinal tissues. In these two instances it is difficult to explain the occurrence of pain, if the results of Dr. Sutton's experiments hold good for man.

DR. S. L. IMMERMAN, Philadelphia: Perhaps there is a difference between intraventricular block and bundle branch block. I understood Dr. Katz to say that in bundle branch block there are no physical signs and one must depend entirely on the electrocardiogram. It is stated that in about 80 per cent of the cases of bundle branch block there are physical signs, changes in the appearance of the apex beat to inspection and changes in the first sound.

DR. H. C. BAZETT, Philadelphia: I should like to ask Dr. Sutton whether he is sure that the coronary pain is due to ischemia rather than to distention. It seems to me that the evidence presented supports but does not prove this explanation. I have punctured my vessels in many places and always the large vessels are much less sensitive than the small vessels. To puncture the radial artery is very painful. It seems to me that the nerve supply is less in the larger vessels and that there is a possibility, as Dr. Wood brought forward, of pain from the aorta if the lesion is large enough, but not pain as easily from the aorta as from the smaller vessels. I should like to believe that Dr. Wood is right because his view accords with my theories.

DR. C. J. WIGGERS, Cleveland: I would like to comment on Dr. Sutton's statement that no coronary vasomotor mechanism has been demonstrated. I should like to ask him what is the matter with my own work on the subject. It apparently has been confirmed. I should be glad to have his criticism of the experimental evidence. Dr. Yater's question brings up the whole question as to the value of blood pressure determinations as criteria of aortic insufficiency. Experimental results would indicate that any aortic insufficiency, small or large, should cause a drop in diastolic pressure, but nature makes her experiments, that we call disease, somewhat more complicated than we do in the laboratory. I should say that an aortic insufficiency accompanied by a high diastolic and high systolic pressure, might be caused by several things: First, it might be a complication due to acceleration of the heart. In the second place, it might obviously be due to an increase in the peripheral resistance, either constriction or change in the peripheral vessels. In the third place, it might be due to a rather small leak. As a matter of fact, the clinical record I threw on the screen was taken from a case that happens to be from a patient who displayed a collapsing pulse, especially when one held the arm up. A distinct water hammer type of pulse was also recognized. The central pulse showed that there was a small regurgitation, but a diastolic murmur was distinctly present. One may have good murmurs with little back flow. In aortic insufficiency a loud murmur may be present with little regurgitation; and a comparatively softer murmur may obtain when the regurgitation is large. The murmurs are not necessarily a criterion of considerable regurgitation.

DR. D. C. SUTTON, Chicago: In answer to Dr. Bishop with regard to the criteria for pain response: In dilatation of the aorta, dyspnea does occur, but without evidence of pain. On the other hand, the moment one begins constriction of the coronary artery, even a relatively small branch, the animal becomes definitely restless along with the increased respiration, and if the branch is a little larger the animal will show all the ordinary evidences of pain. In regard to Dr. Wiggers' question, the attitude I have taken with regard to vascular constriction is not that it is impossible, but that it is still controversial. On the other hand, there is no question about the dilator mechanism. If one can explain cardiac pain as due to a definite process, namely, to disease of the coronary arteries, one places treatment and prognosis on a firm foundation. In regard to the question of Dr. Leinbach, the effects of theobromine can be explained thus: The drug stimulates the dilator mechanism and increases the flow of blood either through the narrowed artery or through dilatation of anastomosing arteries. I have seen patients completely relieved from attacks of angina for long periods as a result of theobromine compounds and at necropsy there was found extensive sclerosis of the coronary arteries. If one has a narrow branch and dilates the bed beyond it, the flow will be increased. In regard to the question about dilatation instead of spasm, as a result of these experiments I believe the sole factor is that of decreased blood flow. In regard to Dr. Wood's question of the pain in the aorta from dissecting aneurysm at the time of rupture: When these experimental animals have ruptured aortas, the pain response appears with tearing of the mediastinum. In regard to Dr. Bazett's question as to distention, I take it that he means distention of the artery. We have distended with the dilator and salt solution the peripheral arteries, the femoral, and the abdominal aorta and did not get evidence of pain.

TETANY ACCOMPANIED BY HYPERPYREXIA AND VOMITING IN THE FIRST DAYS OF LIFE

AN UNUSUAL SYNDROME *

MURRAY H. BASS, M.D.
AND
SAMUEL KARELITZ, M.D.
NEW YORK

Medical literature is replete with statements that tetany does not occur in the new-born infant. It is our purpose in this paper to present three cases, observed within the past year, of new-born infants who presented a clinical picture which we believe should permit its inclusion under the term "tetany."

Our cases are the following:

CASE 1.—A. C., a girl (seen by S. K.), the first child of normal parents, delivered by Dr. E. M. Hawks, July 17, 1930, at term, weighed 7 pounds 7 ounces (3,375 Gm.). Labor was somewhat difficult because of a rigid perineum. An episiotomy was performed. The child was born with one coil of cord wound around her neck but showed no ill effect from it.

In her first day of life she vomited, first some mucoid material, subsequently everything offered. The vomiting continued the next day and became projectile in character and followed immediately after taking water or a formula. The child was put to the breast but would not nurse. The nurse noted that the child was very restless, was nervous, and cried frequently and with a shrill voice. On the third day, vomiting continued and the temperature rose to 103.6 F. Peristaltic waves, from left to right, were noticed, and the abdomen became distended. A consulting pediatrician suggested the diagnosis of pyloric stenosis and advised atropine and subcutaneous injections of dextrose solution. No improvement followed the administration of atropine or dextrose solution. On the fourth day of life, the temperature was 105 F.; her

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abdomen was markedly distended; the child was markedly hypertonic and responded to noises or to being touched by a generalized jerk or spasm. The Chvostek sign was very active and the Trousseau phenomenon also positive. There was a generalized increase of reflexes. When offered fluid, the child took it with much desire but vomited it almost before it had time to enter her stomach. Whole milk with 17 per cent added sugar was just as futile. A rectal drip of 5 per cent dextrose solution was retained. A tube entered the stomach with ease and a return of bile stained fluid was seen. That, plus the fact that meconium had been passed and was also bile stained, suggested that there was no complete intestinal obstruction. To rule out a possible birth injury, a lumbar puncture was done. The fluid was clear, under normal pressure, and contained only 6 cells.

Fig. 1.—Condition immediately after barium was given. The spindle shaped esophagus is shown with spasm at the cardia. Barium is also present in the stomach.

However, despite the symptoms suggesting tetany, the diagnosis of incomplete intestinal obstruction was made. A consulting pediatrician concurred and a surgeon was called. Before the surgeon arrived, barium was given in a small amount of milk and its progress through the stomach and intestine was observed by fluoroscopy and roentgenograms. Fluoroscopy and roentgenograms (figs. 1 and 2) showed a marked cardiospasm, but some of the barium entered the stomach immediately and within a few minutes was in the duodenum. The barium reached the cecum in about five hours but did not pass this part. Enemas previously given were without return, either fecal or gaseous. A barium enema was given, and within a few minutes was expelled with explosive force. Two balls of barium traced from the small intestine were found, thus proving definitely that no intestinal obstruction existed. Spasm of the large intestine was also visible on the roentgenograms. The cardiospasm was still present after twenty-four hours. Several convulsions were observed in the next twenty-four hours and were characterized by carpopedal spasm and a shrill cry. On the fifth day of life the temperature was 106 F., the distention had recurred, the signs of tetany were even more marked, and vomiting continued to be severe. A formula of human milk plus 10 per cent sucrose and 8 per cent farina was made into a thick cereal and given in 1 ounce feedings every two hours. That was retained, and for the first time her weight remained stationary—6 pounds and 5 ounces (2,865 Gm.). At midnight, July 21, her fifth day of life, the temperature was 107.4 F. and she had several violent generalized convulsions. Her temperature dropped to 104 after baths, enemas and wet packs were given. Hyperirritability, restlessness, hyperacusis, positive Chvostek's sign, Trousseau's phenomenon and typical carpopedal spasm continued. The formula was stopped, for fear that it may have contributed to the apparent progress of her illness. July 22, her sixth day, the temperature was 105 F., the Chvostek sign, Trousseau phenomenon and shrill voice were still evident, and vomiting and spasms continued. Blood was drawn for chemical analyses and 8 cc. of calcium gluconate was injected intravenously. The effect was dramatic: the hands and feet, formerly very spastic, suddenly relaxed; she became more alert and brighter; her temperature began to drop; the vomiting diminished, and, in twenty-four hours, the Chvostek sign was barely obtained. The child had slept well for the first time; vomiting occurred only occasionally and no more spasms were observed. The child began to nurse well, she retained water, the temperature became normal, and from then on the child made excellent progress. A gastro-intestinal series, one week later, revealed that the cardiospasm, though still present when food was given, cleared up in a few minutes.

The child had pertussis at 4 months and hardly vomited. She is now 10 months old, weighs 26 pounds (11.8 Kg.) and is neurologically and otherwise a perfect baby. Blood calcium was 8.5 just before the calcium gluconate was injected.

CASE 2.—Baby Z, seen by M. B. in consultation with Dr. Moses Lobsenz, was born Jan. 7, 1931, the second child of healthy parents, after a two hour normal noninstrumental labor. Birth weight was 8 pounds (3,630 Gm.). A few hours after birth the baby vomited a dark brown fluid. It was put to the breast on the second day and vomited several times. Toward evening of that day the temperature rose to 101 F. The third day the child seemed very uncomfortable and cried a great deal. It was given a colonic irrigation and passed much gas. At 5 p. m. castor oil was given and was vomited. Even water was promptly thrown up, the vomiting being projectile in nature. A green bowel movement was passed. The child looked toxic and ill. Atropine, 1/1,000 grain, was given by mouth. In spite of subcutaneous fluid injections, the symptoms continued till on the third day, when we were asked to see it, the condition had become very serious. The temperature had risen to 106.4 F. It vomited everything offered by mouth. It lay on its side with arms and legs in typical carpopedal spasm. Its cry was hoarse. The fontanel was depressed and the eyes were sunken. The abdomen was markedly distended and rigid. On being disturbed, the child went into a mild convulsion. The heart was rapid and regular but the pulse was very poor. Neither the ears, throat nor lungs showed any abnormality to account for the elevation of temperature. On account of the presence of carpopedal spasm, tests were made for Chvostek's sign. It was markedly positive, and the entire head turned in response to the light tap over the facial nerve. The baby appeared moribund. Eight cubic centimeters of calcium gluconate was injected intravenously at 3:40 p. m. At 4 p. m. 2 drachms of breast milk was offered and vomited. One hour later it was again offered and was retained. At 6 p. m. 90 cc. 5 per cent dextrose in saline solution was given under the skin. Breast milk in small quantities was given every two hours and was retained. By midnight the temperature had dropped to 100.6 F. but the general condition of the child was greatly improved: the convulsive movements stopped, the distention lessened, the vomiting disappeared and the spastic condition of the extremities relaxed. On the next day the infant slept almost all day and the temperature came down to normal, where it remained. The child made an uneventful recovery and, when seen again at the age of 2 months, was normal in weight and showed no evidence of rickets or of having been acutely ill.

Fig. 2.—Condition five hours after barium was taken by mouth and immediately after a barium enema was given. Note the spindle shaped esophagus with cardiospasm; the stomach still full of barium; the large intestine full of barium except in the region of the descending colon, where two spastic portions of intestine are seen; two small dense masses of barium in the cecum; fluoroscopy showed that these masses descended from the small intestine.

CASE 3.—A., a boy, seen through the courtesy of Dr. William A. Somerville, was born Jan. 26, 1931, after an easy labor. The birth weight was 6 pounds 10 ounces (3,000 Gm.). On the day of birth the child vomited brownish mucoid material. January 27, the temperature rose to 102.6 F. and the baby refused the breast. A milk and water formula was offered but refused. On the fourth day of life the child's condition became much worse. The temperature rose to 104 F., the abdomen became greatly distended, and he had a general convulsion after which he remained cyanosed for about an hour. Oxygen was administered. The child's

extremities assumed the typical tetany position. Chvostek's and Trousseau's signs were positive. The pulse was weak and the child appeared extremely ill. At 1:30 an ampule of calcium gluconate was given into the buttock and 50 cc. of physiologic solution of sodium chloride was given under the skin. The following day the fever had dropped to 101 F., the formula was better taken, the vomiting ceased and the spasm relaxed. From then on the baby made an uninterrupted recovery.

To summarize, we have reported the cases of three infants who became extremely ill in the first days of life. They vomited frequently from the first day on; their abdomens became markedly distended; the temperature rose to a great height; two of them had marked dysphagia; they evidenced signs of great nerve irritability—Chvostek's sign was extremely marked; their extremities were held in carpopedal spasm; their cries were hoarse; they had repeated convulsions and seemed about to die. They were given calcium intravenously and hypodermically and promptly recovered.

A clinical syndrome, very similar to the foregoing, was described in 1913 by Kehrer,[1] a Swiss gynecologist, who reported six cases under the title of tetany of the new-born. All his cases occurred during the first few days of life. They all showed carpopedal spasm and most of them had a very positive Chvostek's sign. One infant showed galvanic and faradic hyperirritability. Some of the cases presented a positive Trousseau's sign. A number of them had convulsions. Kehrer also described the occurrence of brawny edema on the abdomen and chest. Of his six patients, five promptly recovered after the administration of calcium. One patient died. The calcium was given in the form of calcium chloride, 0.2 Gm. five times a day by mouth. In one case, in which the infant seemed desperately ill, calcium was given hypodermically.

More recently, Shannon described a number of cases, first in 1929 [2] and again in 1931.[3] His cases resemble those of Kehrer, as edema was one of the chief symptoms. Shannon concludes that the triad of symptoms edema, peripheral hyperirritability and cerebral compression constitute a syndrome which must be recognized as an entity and which he believes to be tetany.

We may digress for a moment here to discuss the concept of tetany. It must be realized that by tetany is now understood a group of symptoms characterized by hyperirritability of the nerves both to electrical and to mechanical stimuli, with local and general muscular spasms. It is now known that such a clinical picture may be brought about by several different etiologic factors. Thus, after excessive vomiting, chloride is lost to such a degree that alkalosis results and there is so-called gastric tetany. A closely related form may also result from hyperpnea and from the excessive administration of alkali. It has been suggested that tetany may occur as the result of irritation of a special portion of the brain and that there may be said to exist a tetany center. In infants occurs the form seen commonly in the presence of rickets, in which the symptoms are the result of faulty mineral metabolism. Finally, there is tetany due to hypoparathyroidism. It is, moreover, possible that parathyroid disturbances are bound up with other forms of tetany.

One must not forget that, with so diverse a series of etiologic factors, tetany should be viewed rather as a peculiar symptom complex than as a specific disease. It is also important to be open minded to the possibility that other causes for these symptoms, unknown at present, may bring about this same end-result.

When pediatricians insist that tetany cannot occur in the new-born infant, we believe that they are referring to so-called infantile tetany. The youngest age at which definite infantile tetany has been observed is in a case reported by Powers [4] in 1925. This infant, aged 5 weeks, had repeated convulsions. The electrical reactions were characteristic and the blood calcium was as low as 5.3 mg. Powers says, "While no absolute restrictions are ordinarily placed on the age incidence of infantile tetany, nevertheless its occurrence before the fourth month of life is generally held to be so rare as scarcely to warrant its consideration as a possibility in infants below this age." His patient was cured by the administration of calcium chloride.

J. P. Griffith,[5] in 1926, reported that in an infant, aged 5 weeks, with convulsive attacks, Chvostek's and Trousseau's signs were positive. The blood calcium was 5.3 mg. The child died suddenly while under treatment.

Blood calcium was determined in only one of our cases and was 8.5 mg. per hundred cubic centimeters, which is less than normal but beyond the figure commonly found with infantile or hypoparathyroid tetany. Although we do not regard our cases as infantile or hypoparathyroid tetany, it is interesting to repeat the views of Hess [6] on the relation between the blood calcium and the symptoms of tetany. Referring to infantile tetany, he writes: "One of the most valuable and constant signs of tetany is the lowered calcium in the blood. It is a sign that almost never fails and is almost pathognomonic. However, in nephritis one may find equally low percentages of calcium in the serum without evidence of tetany." He calls attention to the fact that in latent tetany the calcium is from 7 to 8 mg. and drops to 5 or 6 mg. with manifest tetany, but also expresses the fact that latent tetany may occur with calcium of 6 or 7 mg. and manifest tetany with calcium as high as 8 mg. He believes that "the lack of complete harmony between the clinical manifestations and the calcium in the blood indicates that some other factor other than the calcium concentration must be at work." We wish to recall that in renal rickets tetany has been observed with calcium of 10 mg., and absence of tetany has been reported with calcium of 5 mg. In the latter, tetany was absent supposedly because of the acidosis which usually occurs in this disease and permits a normal or increased ionization of calcium. In the former, no explanation is as yet known, unless the altered proportion of calcium to phosphorus is responsible for the tetany.

Among the symptoms of tetany, various authors have referred to localized muscular spasms. The common locations for such spasm are two: the muscles of the extremities giving rise to carpopedal spasm and those of the larynx giving rise to the crow. However, many other muscles may be involved. In 1911, Ibrahim [7] under the title "Tetany of the Sphincters of the Nonstriated Muscles and of the Heart in Nurslings" called attention to spasm of the bladder with retention, to

1. Kehrer, E.: Die Geburtshilflich-gynäkolische Bedeutung der Tetanie, Arch. f. Gynäk. **99**: 372, 1913.
2. Shannon, W. R.: Generalized Edema in Association with Tetany of the New-Born, Arch. Pediat. **46**: 549 (Sept.) 1929.
3. Shannon, W. R.: Tetany, Generalized Edema and Cerebral Compression in the New-Born, Arch. Pediat. **48**: 153 (March) 1931.
4. Powers, G. F.: Tetany as a Cause of Convulsions in Very Young Infants, J. A. M. A. **84**: 1907 (June 20) 1925.
5. Griffith, J. P.: Blood Calcium in Spasmophilia, J. A. M. A. **86**: 828 (March 20) 1926.
6. Hess, A. F.: Rickets, Osteomalacia, and Tetany, Philadelphia, Lea & Febiger, 1929
7. Ibrahim, J.: Ueber Tetanie der Sphinkteren der glatten Muskeln und des Herzens bei Säuglingen, Deutsche Ztschr. f. Nervenh. **41**: 236, 1911.

rectal spasm and to esophageal spasm in cases of true tetany. We have seen localized spasm of the external muscles of one eye during a tetanic seizure and have also described a case of cardiac involvement with extreme tachycardia during manifestations of tetany. The occurrence of cardiospasm in our first case, definitely proved by roentgen examination, would also help, it seems to us, to show that some form of tetany was present.

We could not obtain a history of illness in the mothers of our patients, though Kehrer has shown in some of his reports that the mothers suffered from nephritis and that some of them showed positive Chvostek signs. One of us [8] showed in 1912 that the presence of a positive Chvostek sign in an older child or in an adult does not necessarily mean a real hyperirritability; in fact, we concluded that the sign loses its significance in the diagnosis of tetany as the age increases.

In our cases described in this paper, the irritability of the facial nerve was so great that, when it was tapped with a very light stroke of the percussion hammer, not only the face twitched but the entire body went into spasm with the hands and feet in typical carpopedal position. A similar response was called forth by shaking the bassinet or by making a loud noise.

We are not prepared to state positively what caused these new-born infants to go into this hyperirritable state, but it is of interest to note that all three vomited profusely and in a projectile manner and had high fever and marked abdominal distention. This would allow us to suggest that the tetany may have been gastric in origin, secondary to the vomiting. Unfortunately, we have no chemical studies to substantiate this. We do not maintain that these are cases of infantile tetany but we do believe that, in spite of being newly born, the children were suffering from manifest tetany. In favor of this we again cite the following: the presence of positive Chvostek's sign; presence of positive carpopedal spasm; presence of hoarse cry and crow; presence of convulsions; presence in two cases of dysphagia, which in one was definitely shown to be due to cardiospasm; finally, the amazingly prompt cure by the intravenous administration of calcium.

1097 Park Avenue.

ABSTRACT OF DISCUSSION

DR. BENJAMIN KRAMER, Brooklyn: Tetany is a clinical syndrome characterized by carpopedal spasm, laryngospasm and convulsions. These symptoms are dependent on an increased irritability of the nervous system to mechanical and electrical stimuli. The most common form of tetany is that which occurs in infancy, and is commonly associated with active or healing rickets. Rickets is seldom seen in infants less than 8 weeks of age. Hence, the impression that tetany cannot occur in the very young. There are, however, other conditions in which tetany may occur, such as pyloric obstruction with hyperemesis, and alkalosis produced by hyperventilation of the lungs or after the administration of large doses of sodium bicarbonate. Parathyroid deficiency may express itself as tetany. Age confers no immunity against these forms of tetany. Although the clinical manifestations in all forms of tetany are identical, the chemical changes in the blood may be quite different. Time will not permit a detailed discussion of these changes. The form of tetany that follows pyloric obstruction has been studied by McCann, by MacCallum and his co-workers, and more recently by Gamble. In animals in which pyloric obstruction has been experimentally produced there is a loss of hydrochloric acid and fixed base in the vomitus resulting in a decrease in the serum chloride concentration, an increase of bicarbonate and a diminution of total fixed base in the serum along with a tremendous reduction in total body fluids. Although the serum calcium concentration is usually normal, there is justification for the assumption that the Ca^{++} ion concentration is reduced. In all probability, the cases reported by Drs. Bass and Karelitz represent a similar condition. It is probable that some intracranial damage produced during birth initiated the vomiting and this in turn was responsible for the tetany.

8. Bass, M. H.: Chvostek's Sign and Its Significance in Older Children, Am. J. M. Sc. **144**: 64 (July) 1912.

EPILEPTIFORM SEIZURES OF JACKSONIAN CHARACTER

ANALYSIS OF ONE HUNDRED AND THIRTY CASES *

E. F. FINCHER, JR., M.D.
AND
CHARLES E. DOWMAN, M.D.
ATLANTA, GA.

Localized cortical irritative phenomena occupy a most respected place in the attention of neurologists. Rightfully so, for it was from the study of such cases that cortical localization began and the way was paved for the present knowledge of cerebral cortical physiology. So that today, in patients who present symptoms of an irritative nature of the motor or sensory areas of the brain, correct localization is as certain as scientific diagnosis permits. The exact type of lesion is not so easily surmised as the location, which problem prompted this study of some 130 cases presenting localizing epileptiform attacks.

The literature is replete with reports of groups and single cases of jacksonian epilepsy as a result of injury to the cerebrum. There are also reported numbers of cases with localized motor or sensory attacks occurring in intracranial neoplasms. The location of these tumors has been both cortical and subcortical. Numbers of individual case reports are also to be found in the literature with just as numerous etiologic factors. However, a search of the literature does not yield any single large group of cases of different etiology. Such a collection of cases is very desirable, in order that an opinion concerning the various possible underlying lesions may be anticipated in cases evidencing localized cortical manifestations. There have evolved from this study certain statistical factors of practical and scientific value as well as a justification of certain preconceived ideas concerning the treatment of these cases.

One could not conscientiously deal with any phase of localized cortical phenomena without paying homage to the illustrious English neurologist Hughlings Jackson, who so forcefully detailed localized epileptiform attacks and for whom such cortical manifestations have been rightfully named. It was in 1869 that Jackson published his classic paper entitled "A Study of Convulsions," [1] giving particular attention to localizing attacks occurring without a loss of consciousness. Some five years before this he had observed a series of cases of aphasia with an associated right hemiplegia. At this time he hinted at the possible association of right sided convulsions without aphasia. Jackson wrote: "Palsy depends upon the destruction of fibers and convulsions on instability of gray matter." As early as 1824, Bravais (and later Todd) described unilateral

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1. Jackson, Hughlings: A Study of Convulsions, St. Andrews M. Grad. A. Tr. **3**: 162, 1870.

convulsions without a loss of consciousness. In 1870, Hitzig and Fritsch demonstrated the motor response in stimulating the brain, an observation which was definitely proved by Ferrier two years later. These facts have been emphasized by Parker [2] in a recent historical contribution. There have been numerous notable contributions [3] to the question of cortical irritability, of both experimental and clinical value. However, there still remains the unsettled question as to whether the movements are due to the stimulation of the cortex or to the removal of an inhibitory factor. Regardless of underlying physiologic responses, the study of our cases to date has been from an etiologic and a therapeutic point of view, and an attempt has not been made to investigate the question of cortical excitability.

Certain general features concerning the 130 cases must be touched on. First, cases in this study have been gathered from records of the past ten years. They represent 4.1 per cent of patients who have presented themselves for diagnosis and treatment, in most instances referred by their family physicians, who have recognized their case as neurologic problems. The original survey included some 175 cases, but in view of certain questionable features brought out either from a careful history or from a neurologic examination, 45 were discarded. These questionable features were not the etiologic factors but concerned the exact character

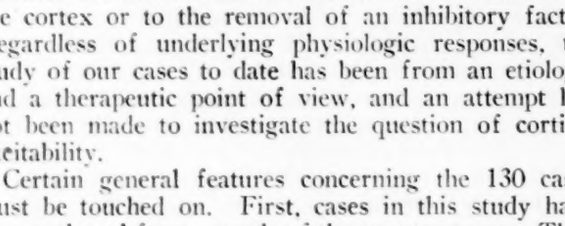


Chart 1.—Epileptiform attacks by decades in 130 cases.

of the attacks both from a subjective description and, in a few instances, from objective observation. Hence the cases have been selected as those presenting definite localizing features, either motor or sensory in character, whose manifestations have followed a definite march. There have occurred two or more like attacks in every case. Although the motor attacks have been complained of as "twitchings," " jerkings," "quiverings," "drawings," "stiffenings," and so on, after careful questioning the descriptions could all be placed under the common term of "jerkings." As for the sensory attacks, they embrace a wide range of paresthesias, such as "numbness," "pricklings," "tinglings," "burning," "needling," and "lightning," but were most constantly a subjective "loss of feeling." While a true jacksonian attack carries the idea of a localized seizure without a loss of consciousness, the term is so frequently used to indicate any convulsive seizure with localizing features that one must usually modify a description before a completed picture of a case may be obtained. That there occurred generalized convulsions either before, after, or independent of, the localized attacks in 28.4 per cent of this series should not be misleading, for of the fourteen cases in which infection seemed to be the etiologic factor, six had the onset of the acute illness ushered in with a generalized convulsion. The focal attacks occurred at variable periods of time after subsidence of the acute illness. Thirteen of the thirty-two patients with tumor of the brain had one or more generalized convulsions at some period in the history of their illness. In one instance there were generalized seizures fourteen years before independent localized attacks appeared. In ninety of the cases, unconsciousness occurred at some time during the history of the illness. In 69.2 per cent of the cases, unconsciousness followed the generalized convulsions. There were only two cases in which there were generalized jerkings without a loss of consciousness, and thirty-five cases (29.6 per cent) which showed a loss of consciousness associated with the localized attacks. This leaves seventy-three patients who did not have generalized convulsions and forty who at no time had a loss of consciousness.

It is an interesting coincidence that sixty-two cases should have occurred as right sided seizures and the same number as left sided phenomena. The remaining six cases showed both right and left sided attacks; this statement may be confusing unless clarified by citation of the following case:

> A male patient had had attacks of "freezing," beginning always in the right side of the face, spreading into the right arm and then down the right side of the body and into the right leg. These attacks occurred several times daily, lasting from two to three minutes over a period of eleven months. Then there began motor attacks of jerkings of the fingers of the left hand, spreading to the wrist and up the arm. There were four such motor attacks over a period of three weeks. A right temporofrontal cyst was resected at operation, and since that time there have been no further attacks on either side.

Without theorizing as to the cause of the bilateral attacks, we cite this case merely as one of 6 of the 130 cases which presented bilateral jacksonian features.

There were eighty-four cases in which the attacks were purely motor and only nine which were solely sensory. Twenty were sensorimotor; that is, the sensory attacks were followed immediately by motor manifestations. In nine of the cases the motor features immediately preceded the sensory attacks. In seventeen instances there were motor and sensory attacks occurring simultaneously. In one case there occurred sensory attacks over a period of eight years before there was any evidence of motor irritability. This was a case of brain tumor involving the right parietal lobe.

The various factors that seem to be responsible for the localizing convulsions in the cases studied were as follows: brain tumor, 24.6 per cent; trauma (accident), 20 per cent; trauma (birth), 14.6 per cent; postinfection, 10.7 per cent; cerebral atrophy, 5.2 per cent; syphilis, 5.3 per cent; palsies of childhood, 3.8 per cent; arteriosclerosis, 3 per cent; a miscellaneous group, 3.8 per cent; undetermined etiology, 8.4 per cent. There were ninety-one males and thirty-nine females. It is strikingly true that in each group the males outnumbered the females, regardless of causative factors.

BRAIN TUMOR

One cannot but be impressed with the relatively high incidence of brain tumor, which occurred as a verified lesion in 32 of the 130 cases. The tumors were present in the various decades of life, but the greatest number

2. Parker, H. L.: Historical Note on Jacksonian Epilepsy, Jour.-Lancet **49**: 107 (March 1) 1929.

3. Cushing, Harvey: A Note upon the Faradic Stimulation of the Postcentral Gyrus in Conscious Patients, Brain **32**: 44, 1909. Head, Henry: Speech and Cerebral Localization, ibid. **46**: 355 (Nov.) 1923. Sittig, Otto: A Clinical Study of Sensory Jacksonian Fits, ibid. **48**: 233 (June) 1925. Cadwalader, W. B.: Significance of Jacksonian Epilepsy in Focal Diagnosis of Cerebral Lesions, Arch. Neurol. & Psychiat. **14**: 358 (Sept.) 1925. Dusser de Barenne, J. G.: Experimental Researches on Sensory Localization in the Cerebral Cortex of the Monkey, Proc. Roy. Soc., B. **96**: 272, 1924. Guillain, G., and Thévenard, A.: Considérations sur l'épilepsie Bravais-Jacksonienne extra-corticale, Ann. de méd. **24**: 58 (June) 1928.

were in patients from 13 to 49 years of age. The infrequency of localized convulsions in children with intracranial neoplasms is due to the fact that the greatest majority of tumors of childhood are located below the tentorium. Although cerebral tumors occur in children, such a lesion is infrequent as compared to those occurring in the posterior fossa. That cerebral neoplasms constitute the largest group in this study might be open for question, the possibility being that these cases were selected from a neurosurgical service. But it happens that this neurosurgical service embraces a rather wide range of neurologic problems.

Of the thirty-two cases of tumor, eighteen were on the right side and fourteen on the left. There were sixteen located in the parietofrontal area, eight in the temporofrontal, four in the parietotemporal and four entirely parietal. There were two tumors completely subcortical in location, one an oligodendroglioma and the other a cystic astrocytoma. The remaining thirty were either partially or completely cortical in location. Eighteen of these were astrocytomas, four gliomas of undetermined type, two plexiform angiomas, one a lymphangioma, one a neuroblastoma, three were fibroblastic tumors of meningeal origin, and one was a gumma.

Spiller [4] described the character of the attacks which occurred in subcortical lesions as tonic in nature and accompanied by paresthesias. In both of the subcortical tumors there were sensory phenomena. In the case of the cystic astrocytoma there occurred a numbness of the side of the face with a drawing of the head to the same side, followed by a jerking of the left side of the mouth, which spread to the lids of the left eye. In the other subcortical tumor the clonic motor manifestations were preceded by a burning pain on the same side of the body.

Bailey and Cushing [5] in their studies of the tumors of the glioma group called attention to "occasional focal epilepsy of long standing" in cases of cerebral astrocytomas in two cases without pressure symptoms. It is therefore of particular interest that, of the thirty cases in this series in which the tumors involved the cortex, eighteen were astrocytomas, which are relatively benign tumors.

The lymphangioma, which was in an infant, 18 months of age, involved also the eye and scalp on the side of the cerebral lesion. This child was one of the two patients in the brain tumor group who had positive Wassermann reactions. The other case in which the blood Wassermann reaction was positive was one of the plexiform angiomas of the parietofrontal region in a girl, 15 years of age. These findings are of interest in view of the fact that the one case of gumma did not present a positive Wassermann reaction on either the blood or the spinal fluid.

In seventeen of the cases there were no generalized convulsions at any time during the history of the illness. Of these seventeen cases, nine showed at some time, associated with jacksonian attacks, a loss of consciousness. This unconsciousness varied in different cases from several minutes to several hours and occurred at times before the attacks, during the attacks and, in some instances, after all irritative phenomena had subsided. In fourteen instances there was an increasing severity of the attacks. Only seven patients gave a history of increasing frequency, and in four cases there was a history of a diminution in the number of seizures as well as in their severity.

Of the thirty-two cases, twelve (37.5 per cent) gave no evidence of increased intracranial pressure. This statistical fact is of particular value since it emphasizes the possibility of intracranial neoplasm in cases presenting evidence of localized neurologic manifestations without symptoms and findings of general increased intracranial pressure. Four of these twelve cases did not give any objective neurologic evidence of a gross intracranial lesion.

In those cases presenting other neurologic manifestations, a facial weakness on the side opposite to the side of the tumor was noted in fifteen of the thirty-two cases. This was the most constant neurologic finding. Roentgen studies were of diagnostic value in thirteen cases. In five cases there were calcium deposits in the lesion, in one there was a partial destruction of the sella turcica, and in three there were general convolutional atrophy changes. Ventricular air studies were done in four cases, in three of which the lateral ventricles were distorted by the tumor, and in one the ventricles were normal in all respects. This was a case of cortical glioma without positive neurologic findings, the exploration being done after observation of a characteristic jacksonian attack.

Chart 2.—Analysis of 130 cases (91 males, 39 females) presenting focal epileptiform manifestations.

In twenty of the cases the first symptom was a jacksonian attack; in the other cases the interval from the onset of symptoms to the first localized attack averaged sixty-two months, this average being high on account of the fact that in two cases there were subjective symptoms twelve years before the localized seizures occurred. The usual interval was from three to twenty-four months. The average period of time elapsing between the onset of localized motor or sensory phenomena and the first examination of the patients was thirty-four and nine-tenths months. The rather surprising length of time which elapsed between the onset of symptoms and the final diagnosis is evidence of the fact that the responsibility of brain tumor in causing localized convulsive seizures is not properly appreciated. Such a chronicity of symptoms is further evidence that the majority of tumors causing such localized phenomena are of a relatively benign character.

TRAUMA (ACCIDENT)

The trauma group constitutes the next largest number of the 130 cases. Twenty-six showed localized convulsions which were apparently the result of cerebral injury. There were three females and twenty-three males in this group. This corresponds to the well recognized greater incidence of trauma in men than in women. Twenty-one of the twenty-six cases occurred between the ages of 10 and 30 years. This is

4. Spiller, W. G.: Subcortical Epilepsy, Brain **50**: 171 (June) 1927.
5. Bailey, Percival; and Cushing, Harvey: Tumors of the Glioma Group, Philadelphia, J. B. Lippincott Company, 1926.

in keeping with the fact that these are the more active years of life, during which individuals are more liable to injury.

The automobile (which is responsible for the greater number of present-day head injuries) was the causative agent in only three cases. On the other hand, injuries of a localized nature were responsible for the brain trauma in the majority of these twenty-six cases. This bears out the contention that a force of small mass and great velocity (such as a blow on the head with a hammer) produces a localized lesion, whereas a force of great mass and moderate velocity (such as a fall striking the head against the ground) produces generalized and often remote damage. Hence it is not surprising that in most instances trauma in these cases resulted from the blow of a lead pipe, bottle, bullet, baseball and, in one instance, a stab wound through the skull. The pathologic condition encountered in most of the fourteen cases in which operation was performed has been that of localized scarring of the cortex and in most cases associated thickened matted meningeal adhesions. In three instances, localized cystic formation with or without an underlying cicatrix was encountered. In two cases an organized subdural blood clot was present. In two cases there was a generalized increase in the amount of the subarachnoid fluid, and in these cases it seemed justifiable to conclude that there had been a general cerebral atrophy with a compensatory collection of fluid, this atrophy probably resulting from a generalized gliosis rather than from any localized trauma. Foerster and Penfield [6] have written particularly of this cicatricial pathologic type and it is their opinion that the scar tissue exerts a "vascular pull" which precipitates the attacks.

The interval between the time of injury and the onset of localized attacks was, with two exceptions, less than twelve months. In nine cases there was no appreciable time interval from the time of the accident until the attacks occurred. In one of the two cases in which the interval between injury and localized attacks was longer than twelve months, there occurred twitchings of the fingers of the right side, spreading to the hand and up the arm into the right side of the face, twelve years after a compound fracture of the skull. These attacks disappeared after the excision of a localized cerebral scar. In three cases there was a history of generalized convulsions, in two cases immediately following the accident and in one case associated with the jacksonian attacks. Including the unconsciousness associated with the generalized convulsions in the three previously mentioned cases, there were ten cases in which there occurred unconsciousness, usually following the localized jerkings.

There were two cases in which positive blood Wassermann reactions were obtained. One was a case of congenital syphilis, and this coincidence might lend support to the idea that trauma is not infrequently a precipitating factor and perhaps not the basic etiologic cause of epileptiform seizures.

Neurologic examination in the cases of trauma was of little value in every instance except in one case of subdural hematoma. In addition to a constant jerking of the right arm and hand, this case showed bilaterally choked disks, an inequality of the pupils, and pathologic toe responses on the side opposite the organized blood clot.

6. Foerster, O., and Penfield, W.: The Structural Basis of Traumatic Epilepsy and Results of Radical Operation, Brain 53: 99 (July) 1930.

In seven of the cases, sensory symptoms of cortical origin were associated with the motor attacks. In every instance except one this cortical involvement indicated postcentral irritation, the one case being associated with a complete aphasia before the onset of the motor attacks.

TRAUMA (BIRTH)

There were nineteen cases in which the etiologic factor in the production of the attacks seemed to have been a definite brain injury at the time of birth. Nine infants had been delivered with forceps; three of these had lacerated scalps, and the others gave only a history of contusions. In three instances there was a history of a short precipitated labor with the use of solution of pituitary. In two instances the difficulties at the time of birth were the result of the mother's pelvic contractures. In two cases there was a history of induced labor because of impending uremia. In three cases there was a history of greatly prolonged labor. In six of the nineteen cases, resuscitation was necessary at the time of birth.

All these cases, with one exception, occurred in the first decade. This case may be open to question. The patient was 24 years of age, with an absolutely negative history, with the exception of forceps delivery after a long hard labor, and resuscitation after birth. He had developed slowly both mentally and physically, and at the age of 19 years began to have right sided motor attacks. An encephalogram was advised and refused. This case is open to criticism as falling into the birth trauma group, but as there was nothing else in the history or examination to account for the attacks it seems justifiable to class it as a case resulting from injury at the time of birth.

The pathologic condition encountered at operation in two of the cases was that of generalized cortical atrophy with thickened meninges and duro-arachnoidal adhesions. In one case in which operation was performed five days after birth, a tremendous subdural hemorrhage was found, resulting from a cortical vein torn where it left the cortex to enter the longitudinal sinus. This patient was the youngest of the 130 studied, being less than 48 hours old when localized jerkings were first observed.

POSTINFECTION

There were fourteen cases which had a definite history of acute febrile attacks with delirium, irritability, convulsions, etc., in which it was felt that the jacksonian seizures were the result of a definite cerebral inflammation. There were eight males and six females in this group. Nine of the cases occurred in the first decade. There were ten cases in which one or more generalized convulsions were associated with the acute febrile attack. The interval between the appearance of the jacksonian attacks and the acute illness was a period of several weeks, except in two cases. Of these two cases, one had a history of a febrile attack with generalized convulsions, which were followed by a hemiplegia that cleared up after several months; five years later localized motor attacks developed on the same side. The other case gave a history of generalized convulsions over a period of four years, which followed a severe attack of infectious parotitis with a residual blindness and deafness. The generalized convulsions subsided, and after a period of three years left sided attacks occurred. By microscopic study of tissue removed at the time of operation, this case was verified as being one of infectious origin. In ten instances the attacks occurred on the right side and in no case in

which the patients were old enough to explain subjective symptoms was there any history of sensory attacks.

CEREBRAL ATROPHY

There were seven cases in the cerebral atrophy group, occurring between the ages of 11 and 33 years. They have been classed as cerebral atrophy owing to the fact that there was a negative history for any type of trauma, infection or systemic disease, and there were no other neurologic manifestations than the focalized attacks. All these cases at operation showed a marked atrophy of the cortex, with a compensatory collection of cerebrospinal fluid. The interval between the onset of attacks and the operation varied from five months to eleven years. In only one instance was there any possible etiologic factor. This was in a man, aged 33, who had drunk a quart of whisky daily over a period of four or five years. This case showed by far the most marked collection of subarachnoid fluid. The others showed about the same cortical shrinkage, regardless of the duration of attacks. There were four left sided motor attacks, which in three instances were preceded by sensory symptoms of a localizing character. Two of the motor attacks were preceded by sensory phenomena. In none of these cases was there a history of generalized convulsions or a loss of consciousness.

SYPHILIS

There were seven cases of syphilis. In two cases there was a definite history of acquired lesions with supporting positive serologic studies. Of the others, all five were of congenital origin; this diagnosis was confirmed by laboratory studies. In one case, in which there was also a tumor of the brain, the positive blood Wassermann reaction was obtained on routine examination, the greater evidence in this case indicating a cerebral neoplasm. That the number of cases of syphilis should be so few is somewhat surprising. Yet, on the other hand, the number of brain tumors that have been treated for syphilis is just as surprisingly high, and it is quite possible that with antisyphilitic treatment many patients with jacksonian attacks have been relieved from their attacks and have not sought further medical advice.

CEREBRAL PALSIES OF CHILDHOOD

The five cases of cerebral palsies of childhood all had a history of a poor start in life. One patient weighed 3 pounds (1.4 Kg.) at birth, another was born after a seven months' pregnancy, and in every instance there was a delayed mental and physical development. Aside from the maldevelopment, three showed residual hemiparesis with other symptoms of pyramidal tract involvement. The localized convulsive seizures in every case involved the paretic side.

ARTERIOSCLEROSIS

There were four cases of cerebral arteriosclerosis, all of which occurred after the sixth decade. The diagnosis of these cases was based on the presence of a peripheral sclerosis, ophthalmoscopic examination and the exclusion of a possible brain tumor. In discussing this small group of cases, we must issue a warning against the exclusion of a cerebral neoplasm even in the presence of the vascular disease, as there occurred, in this series of 130 cases, 2 cases in which there was definite evidence of arteriosclerosis but which also showed symptoms suggesting intracranial neoplasm. In these two cases the diagnosis was confirmed by operation; in one instance there were none of the classic symptoms of increased intracranial pressure.

MISCELLANEOUS CAUSES

There were five cases which did not seem to fit into any etiologic group. The patients varied in age from 1 day to 55 years. The one case of the 1 day old infant showed a complete collapse of both lungs, and it was felt that the jacksonian attacks were due to a supervenosity of the right cerebrum. In the 55 year old patient the tentative diagnosis of Alzheimer's disease was made. In the third patient, a man, aged 50, the attacks were due to a cortical degeneration following vascular thrombosis. There was one case of acute infectious meningitis and one in which the jacksonian attacks occurred as postvaccinal encephalitic sequelae.

UNDETERMINED CAUSES

In a group of eleven cases with undetermined causes there were four in which the lesion was suspected of being a brain tumor, but in three cases further investigative studies or operative intervention was not carried out because of the refusal of the patient. In the fourth "tumor suspect" an encephalogram was done which showed a dilated ventricle on the side opposite the suspected cortical lesion and a filling defect of the ventricle on the same side. This case was never verified by operation, although exploration was advised. In a child, aged 22 months, who had attacks involving the left side following a sudden convulsion at 6 months of age, there was no history of any trauma or febrile illness. There is a possibility that this patient had a spontaneous intracapsular hemorrhage, as evidenced by the left hemiplegia that was present at the onset of the illness. In one individual, aged 57, who had right motor attacks over a period of fifty-two years and gave a history of having had some type of convulsions in early childhood, no definite etiologic factor could be accounted for. In a patient, aged 3 years, who had had right sided attacks for six months in which there was no history to account for the onset of the attacks, an encephalogram was made which gave normal findings. There was a very definite family history of epilepsy in three cases in young individuals in whom localized attacks without a loss of consciousness occurred. In one instance there was a history of delayed physical and mental development. This patient did not present any objective neurologic conditions and gave only a history of motor attacks which were relieved by spinal air injection, the roentgen studies of which gave normal results.

TREATMENT

The study of these cases has justified certain preconceived ideas concerning the treatment. It has long been our opinion as well as that of others who deal with the surgical problems of neurology that the greater number of patients with localized convulsive seizures should be given the benefit of an exploratory craniotomy. The benefits to be offered are, essentially, the removal of the causative lesion and, in cases in which there is no demonstrable gross pathologic condition, the employment of such procedures as will destroy the so-called epileptic zone. This zone can be easily demonstrated by faradic stimulation and its destruction carried out in two or three different ways. No discussion of the jacksonian cases in which operation was not performed will be dealt with in this communication. The treatment of these cases was for the most part medical, except for certain orthopedic procedures in four instances in which there were residual palsies. The treatment of the syphilitic cases has been specific, and in the cases of cerebral arteriosclerosis general measures

have been employed. In the remaining cases a strict dietary antiepileptic regimen supplemented with phenobarbital has been prescribed.

Sixty-nine craniotomies were advised and sixty-two were performed. Three ventricular and four spinal air injections were done. Of the sixty-two craniotomies, twenty-eight were in the tumor cases and fourteen were done for the excision of thickened adherent meninges with or without an underlying cortical cicatrix. In eight cases, destruction of the demonstrable "epileptic area" was done, six cases being treated with the injection of alcohol and two with

Sixty-Two Craniotomies in Cases Presenting Localized Epileptiform Convulsions

Operation	Number	Type	Results
For removal of tumors	28	22 gliomas	13 living and free from attacks; average, 38.3 months 5 survived, free from attacks; average, 28.8 months 4 died following operation
		3 meningiomas	2 living; attacks continuing; average, 52 months 1 died suddenly 12 months after operation
		2 angiomas	1 lived 3 months; 1 lived 24 months; attacks continued
		1 gumma	1 living, attacks continuing, 12 years
Cortical excision	14	8 traumatic	8 living and free from attacks; average, 51 months
		3 infectious	3 living; one or more attacks; average, 62 months
		3 atrophy	1 lived 18 months free from attacks; died 4 years later 2 died following operation
Cortical alcohol injection	6	4 traumatic	2 living and free from attacks; average, 38 months
		2 atrophy	4 living; one or more attacks; average, 7.5 years
Cortical coagulation	2	1 traumatic 1 atrophy	2 living and free from attacks; average, 9 months
Removal of blood clot	4	4 traumatic	3 living and free from attacks; average, 55 months 1 died following operation
Exploration	8	4 atrophy	1 living and free from attacks, 36 months 2 living; attacks continuing; average, 5.5 years 1 died following operation
		1 congenital syphilis	1 living; attacks continued for 3 years; generalized convulsions past 4 years
		1 no gross lesion	1 living and free from attacks 7 months
		1 flattened convolutions	1 living; occasional attack; 3 years
		1 hyperemic cortex	1 living and free from attacks 10 months

electrical coagulation. There were four cases of hemorrhage; two of recent origin and two in which there was an organization of the blood clot. Exploration was done in eight cases, with nothing further than exposure of the cortex.

In twenty-two of the tumor cases in which operation was performed, gliomas were found. Thirteen of these patients are living and free from attacks. The longest period of time elapsing from operation is in one case seven years. The average period of time elapsing since operation is thirty-eight and three-tenths months. There was an average of twenty-eight and eight-tenths months from the time of operation to death in five cases, in one instance the lapse of time being five and one-half years. In no instance in these five cases was there a recurrence of the jacksonian attacks after operation. One of the deaths was from meningitis complicating an acute mastoiditis. There were four postoperative deaths: one patient died twelve hours after an emergency decompression which had been carried out under artificial respiration, two died of shock and one died of an intraventricular hemorrhage.

Of the three patients with meningeal fibroblastoma, one died rather suddenly one year after operation. The other two are living, one five years after operation and the other four years. In all three of these cases as well as in the case of gumma, the tumors were completely removed. In the instance of the gumma, the removal was done twelve years ago.[7] In all four of these cases there has been a distressing persistence of the localizing seizures, although a complete removal in every instance was possible. This disturbing feature suggests the justification of cortical excision or electrocoagulation of the damaged underlying brain at the time of removal of the tumors.

The two cases of plexiform angioma which were exposed at operation, although improved, continued to show localized attacks. In one case in which high voltage roentgen treatment was given, improvement in the severity and frequency of attacks was greater than in the other. This patient died suddenly three months after operation, and a postmortem examination was permitted. A collapsed lung seemed to have been the immediate cause of death. Examination of the brain was of interest, in view of the roentgen treatment, in that the small capillary cortical vessels, which were extremely numerous at the time of operation, were barely noticeable. This observation, together with the diminution in the character of the attacks in this case, might suggest the trial of radiation therapy in like cases which present no evidence of increased intracranial pressure.

Of the fourteen cases in which excision was done at the time of exploration, eight were posttraumatic, three postinfectious, and in three there was no cortical atrophy or any other gross pathologic lesion. Two patients died of postoperative complications: one of surgical shock and one of a meningitis. The others have been free from attacks except in four instances. The average lapse of time since operation has been four and one-fourth years. Of the four patients in whom there have occurred attacks at some time since operation, one has had "an occasional, much lighter attack," and one was free for a period of four years, after which there occurred several attacks, which have been controlled for six months with the administration of phenobarbital. In one case, after an eighteen months period of freedom following operation there developed generalized convulsions which continued until the death of the patient, some four years after operation. This is the only death other than the two occurring immediately after operation. In the fourth instance in which attacks occurred after operation, the patient two years after operation had one attack during a febrile illness, and since that time no other attacks have occurred during the past four years.

There were four cases in which hemorrhage was found at operation. The one patient with birth trauma did not rally from the procedure, which was carried out under artificial respiration. In the other three cases, which were the result of trauma, the patients are all living and free from attacks, a period of three, five and six years, respectively, having elapsed since the time of operation.

7. This patient was seen by us six years after being operated on in another clinic.

Several years ago injection of alcohol into the so-called epileptic zone was advocated, the procedure being for the most part electrical stimulation of the area, with the production of a "typical attack." With the production of this attack the responsive stimulated area was injected with 95 per cent alcohol. Six cases were treated with this method, four of the cases following head injuries. These four cases at the time of operation showed no gross pathologic condition. The other two cases were instances of cortical atrophy of undetermined etiology. The results following the cortical injection of alcohol were in no instance discouraging. One patient was free from attacks for four months, after which there was a recurrence, and the attacks were minimized with the administration of phenobarbital. In two cases, attacks have not occurred in more than three years. These patients are also on phenobarbital. In the other three cases there have been occasional attacks, regardless of all medication and dietary measures. With Penfield's [8] notable contribution to cerebral scar formation, the advisability of alcohol injection into the cortex was opened to question and, as there were no absolute cures without supplementary medication, other methods of cortical destruction were sought.

With the introduction of the electrosurgical unit into cranial surgery it was felt that less harmful results to the brain itself were to be obtained in destroying the so-called epileptic zone by electrocoagulation. There were two cases of the sixty-two craniotomies in which the "epileptic area" was thus destroyed, one in a child who had had cerebral damage at the time of birth and who has been free from attacks for eleven months, and the other in an adult with tremendous cortical atrophy of possible alcoholic etiology. This patient has been free from attacks for seven and one-half months.

CONCLUSIONS

1. One hundred and thirty cases presenting localized convulsive attacks either motor or sensory in character have been analyzed.

2. In regard to the underlying etiologic factors, the cases fall into the following groups: (1) brain tumor, 24.6 per cent; (2) trauma occurring after birth, 20 per cent; (3) birth trauma, 14.6 per cent; (4) postinfection, 10.7 per cent; (5) cerebral atrophy of undetermined cause, 5.2 per cent; (6) syphilis, 5.3 per cent; (7) palsies of childhood of undetermined etiology, 3.8 per cent; (8) arteriosclerosis, 3 per cent; (9) miscellaneous causes, 3.8 per cent; (10) undetermined etiology, 8.4 per cent.

3. There were ninety-one males and thirty-nine females in the group.

4. In sixty-nine of the cases exploratory craniotomy was advised, and in sixty-two it was performed.

5. The treatment in the cases in which operation was performed consisted, in general, of the removal of tumors, the excision of cortical cicatrix, and the destruction of the so-called epileptic zone if no gross lesion was demonstrated.

6. The results in the cases in which operation was performed seem to support the opinion that exploratory craniotomy is a justifiable procedure in all cases presenting localized epileptiform seizures in which the possibility of uncovering a removable lesion or destroying a demonstrable epileptic zone exists.

158 Forest Avenue N. W.

8. Penfield, W.: The Mechanism of Cicatricial Contraction in the Brain, Brain **50**: 499 (Oct.) 1927.

ABSTRACT OF DISCUSSION

DR. WILDER PENFIELD, Montreal: When one studies the cases of so-called idiopathic epilepsy or generalized epilepsy, a large percentage of them prove to belong in the group of focal epilepsy; and it seems to me that Jackson's original conception should be expanded now to include focal epilepsy. In this regard, one should not demand that the movements begin in the fingers or feet for the case to be considered as an instance of jacksonian or focal epilepsy. The cases that result from an irritation in the frontal lobe start, as is known, with a deviation of the eyes and head, and usually the body, to the opposite side. This deviation is not clonic. When the irritation arises low down in the temporal lobe, the attack begins with swallowing or movements of the lips and the tongue; when it is a little farther posterior in the temporal lobe, the attack begins with the turning of the head and eyes also to the opposite side accompanied by some type of sensory aura. Further, if the irritation begins in the occipital lobe the type of sensory aura, such as lights in the opposite field, betrays the initiation of discharge. These cases are as much focal as the typical cases of jacksonian epilepsy. I was much impressed by the high percentage of brain tumors in this list; namely, 24 per cent. I take it that if Dr. Fincher included his cases of injuries with the frank traumatic cases, he would raise the percentage of that group to 34, which would then exceed the frequency of brain tumor. In my own experience, any case of epilepsy which begins after the age of 30 is more apt to be caused by a brain tumor than anything else. I wonder what the experience of others is in this regard. My short experience is the same as the author's in regard to meningeal fibroblastomas. If these tumors have been the cause of epileptic seizures, their removal is apt not to give relief to the seizures, whatever the explanation of this failure to relieve the seizures may be. That thirty of these tumors which produced convulsions should have been on the surface of the cerebrum and none of them, I take it, in the cerebellum, is also of great interest. This accords with the observations made by Woltman at the Mayo Clinic, and also with Jackson's original conception, that epilepsy is most usually caused by an irritation beginning in the cerebral gray matter.

DR. GEORGE W. HALL, Chicago: It appears to me that the neurosurgeons are not giving cognizance to one important factor in connection with these epileptiform seizures; namely, when such seizures of a jacksonian character do occur following injury, there is in the vast majority of cases an hereditary history, which, if sought for, can be obtained. The author today has not gone further than to bring out the actual pathologic factors in those cases which he has reported. It is my opinion that if the social service department could send a visitor to the home and interview the relatives of these patients, evidences of hereditary factors would be obtained, as I have stated, in the great majority of cases.

DR. EDGAR F. FINCHER, JR., Atlanta, Ga.: I shall answer Dr. Hall's question first by saying that there were five cases classed as cerebral palsies of childhood, in all of which the patients had a history of a rather poor start in life; one weighed 3 pounds (1.4 Kg.) at birth, another was a seven months' pregnancy; in every instance there was delayed mental and physical development. In three other cases there was a very definite family history of epilepsy, insanity or some nervous disease. Referring to Dr. Penfield's question, I think that if there is one thing that might be gained from such a study as this it is that in people past the second decade of life brain tumor is more likely to be the cause of jacksonian attacks. I would like to show in the second slide one feature in the treatment of the nontumor cases. In one case of birth trauma in a youngster, aged 2 years, and in a second case, a possible alcoholic addict, stimulation of the cortex in the adult was done under local anesthesia, and in the child, the so-called epileptic zone was demonstrated with the electrosurgical unit. Many are familiar with the recent introduction into neurologic surgery by Drs. Cushing and Bovie of the electrocoagulation unit. In these two cases the coagulation needle was placed in the cortex for a distance of not less than 1.5 cm., and the entire epileptic zone was destroyed by coagulating the cortex. These two patients are living, free from attacks; neither are on any form of medication. They have been free for an average of nine months.

A FAMILIAL EPIDEMIC OF ACUTE DIFFUSE GLOMERULONEPHRITIS

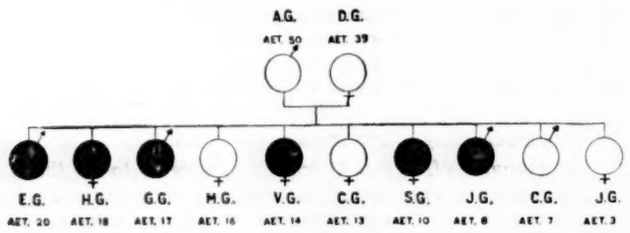
RELATION TO THE PATHOGENESIS OF THE DISEASE *

A. CARLTON ERNSTENE, M.D.
AND
GEORGE P. ROBB, M.D.
BOSTON

Epidemic occurrence of acute diffuse glomerulonephritis in civil life is rare, and only a few instances [1] have been reported in which several members of a family have developed the disease simultaneously or in close succession. The familial epidemic described in this paper affected six of ten children and is of interest because the cases clearly illustrate certain features of the pathogenesis of the disease. The chart gives a schematic representation of the family and indicates the members involved in the epidemic.

REPORT OF EPIDEMIC

In the second week of January, 1928, T. G., aged 8, an American born schoolboy of Greek parentage, became ill with fever, mild sore throat, coryza, headache and severe general malaise. These symptoms lasted six days. During the following seven weeks, there developed in three sisters and two brothers, successively, a similar acute infection of the upper respiratory tract,



Diagrammatic representation of family. The individuals who had acute diffuse glomerulonephritis are indicated by the black symbols.

which lasted from three to seven days. In each individual, hematuria and edema appeared from seven to twelve days after the onset of the illness. None of the patients presented evidence of scarlatina, and three had had that disease several years earlier. None had had a previous attack of acute nephritis. There was no familial history of allergic conditions, such as hay-fever, asthma, food sensitivity and urticaria. The patients were treated at home for from one to six weeks and then successively entered the hospital because of persistence of symptoms and signs of nephritis. At the time of admission to the hospital, edema was present in only two subjects, but the urine of all contained albumin, red blood cells and casts of various kinds. The nonprotein nitrogen content of the blood was elevated in one patient and at the upper limit of normal in another. None of the others presented evidence of renal insufficiency. The arterial blood pressure was within the limits of normal in all.

Cultures from the throat showed many colonies of *Streptococcus viridans* in all patients. Three of the subjects also showed *Streptococcus hemolyticus* and three *Bacillus influenzae* (table 1). Cultures of the urine remained sterile in all.

In the remaining six members of the family, physical examination and urinalysis did not reveal any evidence of nephritis. A short time before the onset of the illness in the first patient, the two youngest children had had "colds" with fever and severe prostration and had been confined to bed for approximately two weeks. The youngest child had had a persistent purulent nasal discharge since that time. Cultures of this material showed pneumococci to be the predominating organism, although a few colonies of *Streptococcus viridans* also were obtained. There had been no recent acute infections of the upper respiratory tract in the other members of the family.

TABLE 1.—*Results of Throat Cultures*

Subject	J. G.	S. G.	H. G.	G. G.	E. G.	V. G.
Streptococcus viridans	+	+	+	+	+	+
Streptococcus hemolyticus	0	+	0	0	+	+
Bacillus influenzae	0	+	+	0	0	+

The patients remained in the hospital for from six weeks to one year, and in each the urinary observations showed a return to normal before the time of discharge. In December, 1930, over two and one-half years after the onset of nephritis, physical examination and urinalysis did not show any abnormalities in four of the patients, including the subject who had had nitrogen retention when admitted to the hospital. In the other two patients, physical examination was negative but the urine contained a slight trace of albumin and a few red blood cells. The nonprotein nitrogen content of the blood and the phenolsulphonphthalein excretion were within the limits of normal. These two subjects were considered to be in the latent stage of glomerulonephritis. A summary of the cases is given in table 2.

COMMENT

Two forms of acute glomerulonephritis are generally recognized: (1) acute diffuse glomerulonephritis and (2) acute focal glomerulonephritis. Both forms commonly result from an acute infection. Several considerations indicate that the acute nephritis of our patients was of the diffuse type. Chief among these is the occurrence of edema in all subjects, and in one the signs of renal insufficiency. The absence of organisms in the urine of the patients is further evidence, for acute diffuse glomerulonephritis is not caused by actual bacterial invasion of the kidneys.[2] The fact that signs of pathologic changes in the kidneys appeared at a perceptible interval after subsidence of the acute infection is also characteristic of diffuse glomerulonephritis.

Acute focal glomerulonephritis, in contradistinction to acute diffuse glomerulonephritis, develops at the height of an acute infection and is due to direct action of micro-organisms on the kidneys. The organisms usually are present in the urine and in the renal lesions at necropsy. The condition is not accompanied by edema and only rarely causes renal insufficiency.[3]

The similarity of the initial acute infection in all our patients indicates that the infections probably were caused by the same type of micro-organism. The development of the illness successively in various members

* From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital; the Medical Research Laboratories, Beth Israel Hospital, and the Department of Medicine, Harvard University Medical School.

1. Eason, J.; Smith, G. L. M., and Buchanan, G.: Hereditary and Familial Nephritis, Lancet **2**: 639 (Sept. 27) 1924.

2. Longcope, W. T.: The Pathogenesis of Glomerular Nephritis, Bull. Johns Hopkins Hosp. **45**: 335 (Dec.) 1929.

3. Fishberg, A. M.: Hypertension and Nephritis, Philadelphia, Lea & Febiger, 1930.

of the family suggests, further, that the causative organism had been transferred from one individual to another. Whether the earlier illness in the two youngest children was due to the same agent but for some reason was not followed by the development of acute nephritis could not be determined, although the duration of the illness and the degree of accompanying prostration is suggestive.

In the great majority of cases of acute diffuse glomerulonephritis, the primary infection is of streptococcal origin. Longcope and his associates [4] obtained streptococci of the β type (*Streptococcus hemolyticus*) from foci of infection in twenty-two of thirty-two patients with acute or subacute glomerulonephritis and streptococci of the α type (*Streptococcus viridans*) in four patients of the series. In our patients absolute proof as to the identity of the causative micro-organism could not be obtained, but the isolation of large numbers of streptococci of the viridans type from the throat cultures of all six subjects and the presence of *Streptococcus hemolyticus* in three individuals is of considerable significance. The presence of β hemolytic streptococci in one half of the cases suggests that earlier bacteriologic studies might have shown this organism in all subjects.

The hypothesis that acute diffuse glomerulonephritis results from the development of an allergic state during the process of immunization to the primary infection is widely held at present,[5] although experimental proof has not been obtained. Schick,[6] who first proposed this theory, directed attention to the similarity between the interval from the onset of scarlatina to the appearance of acute diffuse glomerulonephritis and the interval between the administration of horse serum and the development of serum sickness. In our patients the symptoms and signs of acute nephritis appeared from seven to twelve days after the onset of the acute infection of the upper respiratory tract. The length of this interval may be considered additional clinical evidence of the rôle of allergy in the pathogenesis of acute diffuse glomerulonephritis.

Allergic conditions, such as hay-fever, asthma, food sensitivity and urticaria, are often familial. The rare occurrence of familial epidemics of acute diffuse glomerulonephritis may be due to the fact that a familial tendency to this type of allergy is uncommon or that many individuals possessing the allergic tendency escape infections which would become the source of the nephritis-producing allergen.

SUMMARY

1. A familial epidemic of acute diffuse glomerulonephritis not due to scarlatina is recorded.

2. Eight of ten children successively developed an acute infection of the upper respiratory tract and, in six, symptoms and signs of acute diffuse glomerulonephritis appeared during convalescence.

3. The interval elapsing in each case between the onset of the acute infection and the appearance of nephritis supports the hypothesis that acute diffuse glomerulonephritis results from the development of a state of hypersensitiveness to the primary infection.

4. Although cultures from the throats of all subjects yielded streptococci, absolute proof as to the precise identity of the organism causing the primary infection could not be obtained.

330 Brookline Avenue.

TABLE 2.—*Summary of Cases*

Subject	Acute Infection of the Upper Respiratory Tract: Date of Onset, 1928	Acute Infection of the Upper Respiratory Tract: Duration, Days	Interval Between Onset of Primary Infection and Appearance of Nephritis, Days	Interval Between Onset of Primary Infection and Admission to Hospital, Days	Observations on Admission to Hospital: Edema	Arterial Pressure: Systolic Mm. Hg	Arterial Pressure: Diastolic Mm. Hg	Urinalysis: Color	Urinalysis: Specific Gravity	Urinalysis: Albumin	Urinalysis: Red Blood Cells	Urinalysis: White Blood Cells	Urinalysis: Casts	Phenolsulphonphthalein Excretion, per Cent	Blood Nonprotein Nitrogen, Mg. in 100 Cc.	State of Nephritis, December, 1930
J. G.	1/10±	6	10	32±	+	100	50	Smoky	1.015	Slight trace	Very many	Few	Hyaline, granular and erythrocyte	70	24	Latent
S. G.	1/17±	7	10±	28±	0	100	74	Red	1.028	Trace	Very many	Many	Hyaline, granular, epithelial cell and erythrocyte	90	24	Latent
H. G.*	1/28	3	7	52	0	126	68	Straw	1.026	Slight trace	Few	Few	Hyaline and granular	60	28	Healed
G. G.*	2/15	5	7	30	0	118	60	Smoky	1.009	Large trace	Very many	Few	Granular, epithelial cell and erythrocyte	30	70	Healed
E. G.	2/18	6	12	27	0	108	72	Cloudy	1.028	Slight trace	Many	Many	Hyaline, granular and erythrocyte	65	38	Healed
V. G.	3/2	5	9±	17	+	120	80	Cloudy	1.018	Trace	Very many	Many	Hyaline, granular, epithelial cell and erythrocyte	60	30	Healed

* Permission to study these patients was granted by the authorities of the Robert B. Brigham Hospital.

4. Longcope, W. T.; O'Brien, D. P.; McGuire, J.; Hansen, O. C., and Denny, E. R.: Relationship of Acute Infections to Glomerular Nephritis, J. Clin. Investigation **5**: 7 (Dec.) 1927.

5. Longcope (footnote 2). Fishberg (footnote 3).

6. Schick, Béla: Die Nachkrankheiten des Scharlach, Jahrb. f. Kinderh. **65**: 132, 1907.

Bacteriologic Content of Maxillary Sinus.—There is a noticeable paucity of literature relative to the bacteriologic content of the maxillary sinus. With but few exceptions the literature teaches that the normal maxillary sinus or antrum of Highmore is sterile or free from bacteria. Torne, in 1903, demonstrated that healthy accessory sinuses of persons who had been dead over two hours were sterile. Lewis and Turner, in 1905, concluded after much investigation that the healthy accessory sinuses were probably sterile. Skillern, in 1912, examined post mortem the antrums of one hundred persons who died from tuberculosis, and he came to the conclusion that in health the sinuses were free from bacteria.—Balmer, F. B.: The Relation of Clinical to Bacteriologic Observations in Normal and in Diseased Maxillary Antrums, *Arch. Otol.* **14**:440 (Oct.) 1931.

Clinical Notes, Suggestions and New Instruments

RETENTION OF URINE DUE TO CYST OF THE PROSTATE

H. G. HAMER, M.D., INDIANAPOLIS

Dr. S. E. J., aged 43, came for consultation, complaining of difficulty of urination. Ten days before, he had had retention of urine, necessitating catheterization. Following this first catheterization he was able to void but could not empty his bladder satisfactorily and had therefore catheterized himself several times daily. The urine was amber in color, slightly cloudy, and acid; the specific gravity was 1.026, urea 2 per cent; tests for albumin and for sugar gave negative results; pus and blood cells were present in moderate degree.

On examination the patient was found to have 3 ounces of residual urine. No obstruction to the passage of a catheter was encountered. The prostate was swollen, tense and tender.

He was directed to pass the catheter as often as necessary for comfort and to use a hot rectal douche twice a day. After the acute tenderness of the prostate subsided, massage was given, but this gave little relief. After a month he reported some improvement but was still unable to empty his bladder. The urine was clear and the phenolsulphonphthalein test was 65 per cent for the first and 10 per cent for the second hour, a total output of 75 per cent for 2 hours.

Cystoscopic examination disclosed a rounded tumor springing from the anterior margin of the vesical orifice. This tumor was about 1.5 cm. in diameter, of smooth and shining surface, and on manipulations of the cystoscope seemed to be soft. With the d'Arsonval current a groove was burned over the surface of the tumor. During the application of the current the tumor collapsed, with the escape of fluid. The tip of the electrode was carried into the cavity of the cyst, which was moderately burned. Following this treatment the retention of urine was relieved. When last seen, six months later, the patient reported that he was entirely free from symptoms.

The foregoing case, which under some circumstances might have called for a radical operation, shows the possibility of relief of similar conditions by fulguration alone.

1711 North Capitol Avenue.

DERMATITIS OF THE UPPER EYELIDS DUE TO THE USE OF A "HAIR TONIC"

LESTER HOLLANDER, M.D., PITTSBURGH

Mrs. S. T. B., aged 29, an American housewife, was referred to me because of a severe dermatitis of the right upper eyelid of six weeks' duration and a milder inflammatory involvement of the left upper eyelid of a few days' duration.

The swelling and redness were so marked on the right upper lid that the patient was unable to open her eye. The involvement of the left upper eyelid was sharply outlined, covering about one third of the lid area, with a fine erythema and a shiny somewhat tense skin surface.

The itching, burning and discomfort were very marked.

The outstanding features of her history were as follows:

1. This was her first attack.
2. The condition was always much worse in the morning.
3. She sleeps on her right side, burying her face in a bolster.
4. There was nothing new in her home or in her bedroom.
5. She does not use cosmetics.
6. She was not in contact with plants.

It is apparent from the history that I had to look for some substance or agent which the patient had been using for the first time about six weeks ago, which came in contact with her especially at night.

As I got no help from the patient, I went over the usual procedures which are preparatory to retiring and found that six weeks ago she bought a bottle of "Wild Root" hair tonic, which she used for a few days only, however. I almost gave up this lead when I found that she occupied a double bed with her husband, that they used an elongated single bolster as headrest, and that her husband had been using this same "Wild Root" hair tonic since she discontinued using the preparation. The bolster cover was the medium of transmission: i. e., from the scalp to the bolster cover, from the bolster cover to the closed upper eyelid.

Shampooing the head of the husband and wife and discontinuing the use of the bolster and the "Wild Root" hair tonic brought about the recovery of the patient.

631 Jenkins Building.

[EDITORIAL NOTE.—According to information furnished by the Bureau of Investigation, Wildroot Hair Tonic was originally known as "Wildroot Dandruff and Eczema Cure" and, later, as "Wildroot Dandruff Remedy." It was analyzed by the late Dr. Harvey W. Wiley, who reported in his book "1001 Tests," published in 1916, that the stuff contained arsenic and some phenolic body, probably resorcin, while there was a trace of alkaloidal material too small for identification. It contained 40 per cent of alcohol, which was declared on the label. In 1924, the Connecticut Agricultural Experiment Station published in its report by Dr. E. M. Bailey the statement that analysis of the Wildroot Hair Tonic disclosed the presence of 23 mg. of arsenic per hundred cubic centimeters. In the special article by Dr. Harold N. Cole entitled "Investigation of Injuries from Hair Dyes, Dyed Furs and Cosmetics," published in THE JOURNAL, Feb. 5, 1927, p. 397, there was reported one case of injury from the use of Wildroot.]

TOXIC CIRRHOSIS OF THE LIVER FROM "OXYL-IODIDE": REPORT OF CASE *

ALBERT H. ELLIOT, M.D., SANTA BARBARA, CALIF.

Since their introduction to medicine in 1908, preparations containing cinchophen (phenyl-quinoline-carboxylic acid) have been used extensively in the treatment of neuralgic and rheumatic disorders. A comparatively large number of instances of toxic manifestations following their use have been reported. Beaver and Robertson,[1] in a recent paper dealing with this subject, have found thirty fatal cases in the literature, and report five more encountered at the Mayo Clinic. The primary pathologic lesion was a necrosis of the liver parenchyma. The toxicity of the drug did not appear to depend on the dosage or the length of time over which it was taken but apparently on some individual factor of lowered resistance or idiosyncrasy.

I wish to report another instance of fatal toxic hepatitis from the use of a cinchophen-containing preparation.

E. M., aged 24, a Mexican woman, married, had had pain and stiffness of the right shoulder at frequent intervals for six years. In conjunction with physical therapeutic measures, "oxyl-iodide" compound, each capsule of which contains 3 grains (0.2 Gm.) each of phenylcinchoninic acid and phenylcinchoninic hydro-iodide, was prescribed in a dosage of two capsules three times daily after meals. At the end of a week she was much improved and was advised to continue the medication for another seven days. When next seen four weeks later, she was complaining of nausea and vomiting of one day's duration, and was slightly jaundiced. She stated that she had continued to take the drug at the same dosage over this four week period, the druggist refilling her prescription without question. It was estimated that she had taken 210 capsules (8.4 Gm.) altogether.

She entered the Cottage Hospital immediately. On physical examination there was a moderate icteric tinge of the sclerae, palate and skin. A smooth, moderately tender liver edge was felt at the costal margin on deep inspiration. The spleen was not palpable nor enlarged to percussion. Ascites or edema was not present. There were no other physical observations of note. The laboratory examination revealed: hemoglobin, 82 per cent (Dare); erythrocytes, 4,280,000 per cubic millimeter; leukocytes, 12,200 per cubic millimeter, of which neutrophils composed 68 per cent, small lymphocytes 30 per cent, eosinophils 1 per cent, and basophils 1 per cent. The urine contained a trace of albumin, but bilirubin, bile acids and urobilinogen (Ehrlich's test) were consistently absent on daily examinations throughout her illness. Chemical analysis of the blood revealed a urea nitrogen of 15.5 mg. per hundred cubic centimeters of blood,

* From the Santa Barbara Cottage Hospital.

1. Beaver, D. C., and Robertson, H. E.: The Specific Character of Toxic Cirrhosis as Observed in Cinchophen Poisoning, Am. J. Path. 8: 237-256 (May) 1931.

an amino-acid nitrogen of 9.7 mg., and a blood sugar of 94 mg. The icteric index was 75. The bromsulphalein liver function test gave a 100 per cent retention of dye in the blood stream after thirty minutes on two examinations.

On a diet containing 280 Gm. of carbohydrate with a minimum of protein, and 10 units of insulin twice daily, the patient felt well in every respect despite the fact that percussion demonstrated a progressive decrease in liver dulness, and the icteric index steadily mounted to a maximum of 202 two days before death. Nine days after hospital entry, nausea and vomiting appeared, and periods of mental confusion developed, characterized by disorientation and hallucinations. At this time leucine and tyrosine crystals were found in the urine, and the amino-acid nitrogen of the blood had risen to 10 mg. per hundred cubic centimeters. She was given 2 liters of 10 per cent dextrose combined with insulin intravenously during the day, and roused a little in the evening, only to sink toward morning into a deep coma resembling sleep, from which she never aroused. During the period of active delirium it was noted that she did not move her left arm or leg. The biceps and patellar reflexes could not be elicited on the left, and there was a positive Babinski sign. She died on the following day, twelve days after the first appearance of symptoms. Permission for necropsy was not obtained.

GONORRHEAL SALPINGITIS AND PERIHEPATIC ADHESIONS

CARL BEARSE, M.D., BOSTON

The observation that perihepatic adhesions are to be found at times in patients who also have gonorrheal salpingitis was first made by Curtis,[1] a little more than a year ago. Since such adhesions may be the cause of symptoms and play a part in the clinical picture of salpingitis, any further facts relating to this complication are deserving of record.

REPORT OF CASE

H. D., aged 17, a white girl, single, was first seen in consultation with Dr. J. C. Henken at the Malden Hospital, Aug. 22, 1930. August 6, while she was menstruating, cramp-like pains developed in the left lower quadrant of the abdomen. The pains were remittent in character, subsiding while she remained in bed and recurring when she arose. Finally, the pains subsided completely and for several days she was free from all symptoms. August 20, two weeks after the onset of her illness, sharp, knifelike pains developed in the right upper quadrant of the abdomen. These pains were localized and were accompanied by nausea and vomiting.

Physical examination disclosed that the patient was fairly well developed and nourished, looked her age and seemed comfortable. The temperature was 100 F., the pulse was 92, and the leukocyte count was 14,000. The tongue was heavily coated. Abdominal palpation disclosed tenderness and resistance in the right upper quadrant. Neither spasm nor distention was found, nor could any masses be felt. The rest of the abdomen was soft and not tender. Vaginal examination showed a profuse, greenish discharge. There were no masses in the vaults. The uterus was normal in size and position, freely movable, and not painful to manipulation. There was no tenderness over the tubes. Vaginal smears disclosed intracellular diplococci.

It was deemed advisable to keep the patient under observation, and she spent a rather comfortable night. The following morning she complained of a great deal of pain, present only in the right upper portion of the abdomen. A flat roentgenogram of the abdomen disclosed nothing abnormal. Urinalysis gave negative results. A second leukocyte count was 16,000.

As there was no evidence at this time of acute tubal inflammation and since the possibility of an acutely inflamed, high, retrocecal appendix could not be ruled out, operation was advised and accepted.

Under ether anesthesia, a right paramedian incision was made. The peritoneum was opened without event. There was no free fluid. The intestines were injected. Exploration of the pelvic organs revealed the presence of many cobweb-like adhesions, but the tubes were not distended, and the ovaries and the uterus were normal. The appendix was retrocecal, markedly injected, moderately distended, and thickened. The gallbladder was of normal size and appearance, had no adhesions, was easily emptied, and contained no stones. During the gallbladder exploration, many adhesions resembling those felt in the pelvis were seen between the liver and the peritoneum. The appendix was removed, and the incision was closed in layers without drainage. The pathologic report by Dr. J. S. Rooney gave as the diagnosis acute appendicitis.

The patient made an uneventful convalescence, the incision healing by first intention. She was discharged from the hospital on the tenth postoperative day.

COMMENT

Since the appendix in this case showed evidence of acute inflammation, it is quite difficult to conjecture to what extent the adhesions were responsible for the symptoms. The adhesions were not of the firm, "violin string" type described by Curtis and Hinton[2] but were flimsy and cobweb like. It is to be noted, however, that the adhesions reported by these men were discovered long after the onset of the pelvic inflammation, whereas the adhesions in this case were found three weeks after the onset of pelvic symptoms.

While the relationship between such adhesions and gonorrheal salpingitis has not as yet been proved, the observations reported are significant. Scott[3] recently reported the finding of a subdiaphragmatic gonorrheal abscess in a girl whose vaginal smears showed intracellular diplococci, and he thought that the infection was transmitted by the lymphatics or blood stream. Curtis, on the other hand, concluded from the pathologic condition found in the right upper portion of the abdomen that gonorrheal tubal disease is not always limited to the pelvis.

CONCLUSION

Should gonorrheal salpingitis be the cause of perihepatic adhesions, the case reported would seem to indicate that such adhesions may occur early in the inflammatory process.

483 Beacon Street.

1. Curtis, A. H.: A Cause of Adhesions in the Right Upper Quadrant, J. A. M. A. **94**: 1221 (April 19) 1930.

2. Hinton, J. W.: Hepatodiaphragmatic Adhesions as a Cause of Upper Abdominal Pain, J. A. M. A. **95**: 1744 (Dec. 6) 1930.

3. Scott, G. D.: Subdiaphragmatic Gonorrheal Abscess, J. A. M. A. **96**: 1681 (May 16) 1931.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

H. A. CARTER, Secretary.

SCHELLBERG APPARATUS FOR COLONIC THERAPY NOT ACCEPTABLE

The Schellberg apparatus for colonic therapy, manufactured and submitted by the Schellberg Manufacturing Company, New York, is stated to be a "new and improved medical apparatus for use in proctotherapy." In the letters patent the statements are made, among others, that "it is a further object of the invention to provide means which in its action will remove all obstructions and clean all pockets of the colon"; and also, "it is a still further object of the invention to construct an apparatus the use of which permits of a thorough cleansing of the several passages and is capable in use of insertion to a point where the cecum may be treated."

In the circulars descriptive of the Schellberg apparatus, there are portrayed tables, a metal valve, various receptacles, rectal tubes and sterilizers, intended presumably to afford a complete equipment. The chief mechanical feature of the whole equipment is apparently the metal apparatus consisting of a by-pass valve which permits convenient entry into a rectal tube, with special tip, of the irrigating or other fluid; and also permits the exit from the rectal tube of the contents within the sigmoid or colon.

Of the pamphlets submitted, one is descriptive of the apparatus and the remaining pamphlets have to do chiefly with discussions of the alleged physiology of the bowel and of the colon in particular. In one of the latter, entitled "Colonic Therapy" (copyright, 1928, Schellberg Institute, Inc.), many loose and

absurd statements are made, of which the following may be taken as examples: "Defects in the colon, either of structure or of function, are responsible for the majority of human ailments. This is known to doctors everywhere. Most of them know also that permanent relief from such conditions can be secured but in one way. Methods such as the use of enemas, which were never either safe or efficient, can be replaced by those which our present knowledge has shown to be the only logical ones. And these methods are founded upon the physiological principles discovered and defined by O. Boto Schellberg."

In the pamphlet entitled "Colonic Therapy" the following statement is made: "As finally perfected it [the Schellberg apparatus] now permits a properly trained and skillful technician to give the colon any form of treatment required without the danger of doing the patient the slightest harm"; and again, farther on, "the technique consists in passing a tube up the colon, entirely through its length when necessary."

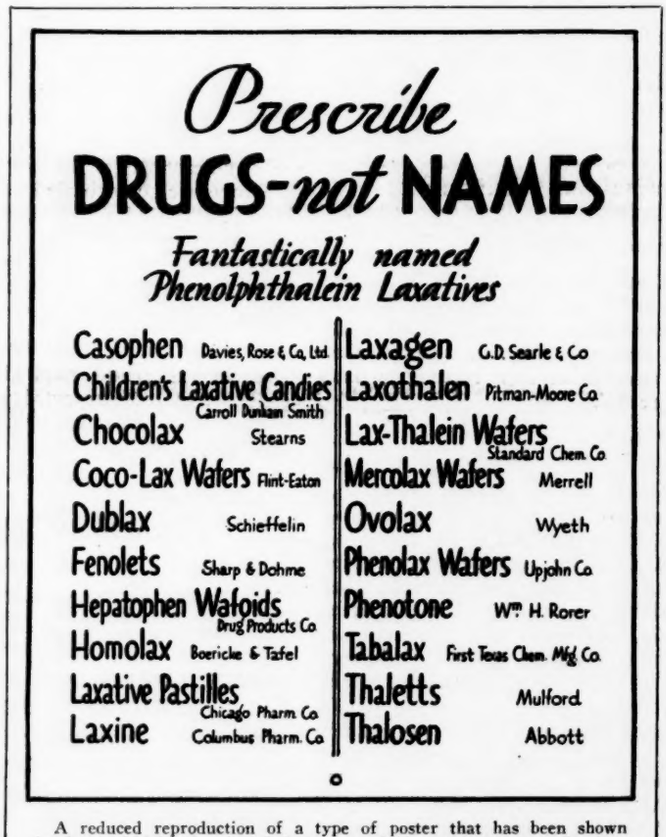
The qualifying statement is added, a few lines farther, to the effect that "based as it is on a profound knowledge of the physiology, bacteriology and chemistry of the colon, its use [viz., the method under discussion] must be limited to those who have this knowledge completely at their command. The technique necessary is too delicate and elaborate to be entrusted to unskilled and unschooled operators.'

In view of the foregoing, it appears that the limits of safety and the possibilities of danger attending the use of this apparatus and method are not adequately pointed out. It would appear that without further emphasis on such possible dangers, some persons considering themselves adequately trained might do serious damage to a subject in whom, for example, the effort was made to introduce a rectal or colonic tube as far as the cecum.

Acceptance of the recommendation and method having to do with the introduction of a rectal tube as far as the cecum, for irrigating or other purposes, more or less as a routine, could not, in the opinion of the Council, be justified without critical evidence of the necessity, safety and superior efficiency of such a measure. To date the firm has failed to furnish this evidence.

In the descriptive matter accompanying the apparatus, sweeping and uncorroborated statements are made relating to the physiology of the colon. On these premises, implications of therapeutic value are permitted the reader which are exaggerated and misleading.

The Council on Physical Therapy has reached the conclusion that, while the essential purpose concerned can also be achieved by simpler means, the apparatus is convenient to use. The supposedly authoritative statements bearing on the physiology of the bowel, however, and the therapeutic implications consequent on them must be radically modified to meet the requirements of the Council. Until such revision has been made in the advertising and descriptive matter pertaining to this device, as is indicated in this report, the Council on Physical Therapy declares the Schellberg Apparatus for Colonic Therapy not acceptable for inclusion in its list of accepted devices.



A reduced reproduction of a type of poster that has been shown in the A. M. A. Chemical Laboratory exhibits at the Annual Sessions of the American Medical Association. It is more rational to prescribe a phenolphthalein tablet under its right name.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1931, p. 376).

Parke, Davis & Company, Detroit.

Typhoid-Paratyphoid Vaccine (Prophylactic) (See New and Nonofficial Remedies, 1931, p. 380).—Also marketed in packages of ten 2½ cc. rubber diaphragm capped vials (Bio 444), containing in each cc. 1,000 million killed typhoid bacilli, 750 million killed paratyphoid A and 750 million killed paratyphoid B bacilli.

Typhoid Vaccine (Prophylactic) (See New and Nonofficial Remedies, 1931, p. 380).—Also marketed in packages of ten 2½ cc. rubber diaphragm capped vials (Bio 429), containing in each cc. 1,000 million killed typhoid bacilli.

SOLUTION BRAIN EXTRACT (See New and Nonofficial Remedies, 1931, p. 188).

Thromboplastin Local-Lederle.—An extract of cattle brain in physiological solution of sodium chloride, prepared according to the method of Hess.

Actions and Uses.—See Fibrin Ferments and Thromboplastic Substances, New and Nonofficial Remedies, 1931, p. 186.

Dosage.—See Solution Brain Extract, New and Nonofficial Remedies, 1931, p. 188.

Manufactured by the Lederle Laboratories, Inc., Pearl River, N. Y. No U. S. patent or trademark.

Thromboplastin Local-Lederle, 5 cc. Vial.

Thromboplastin Local-Lederle, 20 cc. Vial.

The potency of thromboplastin local-Lederle is tested as follows: Oxalated blood plasma is obtained by adding 2.5 cc. of sodium oxalate solution 1 per cent. Transfer 0.5 cc. of oxalated blood plasma to each of a series of tubes, and add 0.2 cc. of thromboplastin local-Lederle to each tube. Also transfer 0.5 cc. of oxalated blood plasma to each of a control series of tubes and add 0.2 cc. of physiological solution of sodium chloride. To each tube (and control) add 0.3 cc. of calcium chloride solution (0.5 per cent in physiological solution of sodium chloride): thromboplastin local-Lederle must cause clotting of the oxalated blood (such as to permit complete inversion of the tubes) within one minute; the controls must fail to show clotting at the expiration of 20 minutes.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1931, p. 370).

Lederle Laboratories, Inc., Pearl River, N. Y.

Diphtheria Toxoid (See New and Nonofficial Remedies, 1931, p. 370).—Also marketed in packages of one immunization treatment consisting of two 1 cc. syringes; in packages of one immunization treatment consisting of two 1 cc. vials; in packages of one syringe containing sufficient diluted diphtheria toxoid for one reaction test; and in packages of one vial containing sufficient diluted diphtheria toxoid for five reaction tests.

DEXTROSE (See New and Nonofficial Remedies, 1931, p. 248).

The following dosage form has been accepted:

Glaseptic Ampoules Solution Glucose, 50 per cent, 100 cc.: Each ampoule contains dextrose U. S. P. 50 Gm., in distilled water to make 100 cc.; buffered with sodium citrate, 0.25 per cent.

Prepared by Parke, Davis & Company, Detroit.

POLLEN ANTIGENS-LEDERLE (See New and Nonofficial Remedies, 1931, p. 28).

The following products have been accepted:

Prostrate Pigweed Pollen Antigen-Lederle; Summer Cypress Pollen Antigen-Lederle.

The following dosage form has been accepted:

Series D package: five vials each containing 3,000 pollen units and five vials of sterile diluent with which to make the proper dilution of each dose.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1931, p. 361).

Lederle Laboratories, Inc., Pearl River, N. Y.

Diphtheria Toxin-Antitoxin Mixture (0.1 L+) (See New and Nonofficial Remedies, 1931, p. 362).—Also marketed in packages of three syringes, representing one complete immunization.

NEOCINCHOPHEN-ABBOTT (See New and Nonofficial Remedies, 1931, p. 123).

The following dosage form has been accepted:

Neocinchophen-Abbott Tablets, 7½ grains.

TUBERCULIN-KOCH (See New and Nonofficial Remedies, 1931, p. 364).

H. K. Mulford Company, Philadelphia.

Tuberculin Intracutaneous (Human Type) (See New and Nonofficial Remedies, 1931, p. 366).—Also marketed in packages of one 3 cc. vial (M 331-028) containing tuberculin old (human type) sufficient for 50 tests.

Tuberculin Intracutaneous (Bovine Type) (See New and Nonofficial Remedies, 1931, p. 366).—Also marketed in packages of one 3 cc. vial (M 332-028) containing tuberculin old (bovine type) sufficient for 50 tests.

SCARLET FEVER STREPTOCOCCUS TOXIN (See New and Nonofficial Remedies, 1931, p. 369).

Parke, Davis & Company, Detroit.

Scarlet Fever Streptococcus Toxin for Preventive Immunization-P., D. & Co. (See New and Nonofficial Remedies, 1931, p. 369).—Also marketed in packages of six 1 cc. vials (Bio 158), one containing 500 skin test doses per cc., one containing 2,000 skin test doses per cc., one containing 8,000 skin test doses per cc., one containing 25,000 skin test doses per cc., and two containing 40,000 skin test doses per cc., of which 2 cc. is used for the fifth dose.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

PABST-ETT (SWISS VARIETY)

A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals

Manufacturer.—Pabst Corporation, Milwaukee.

Description.—A blend of process Swiss and process American cheese containing disodium phosphate as emulsifier; with added salt, evaporated milk and concentrated milk whey.

Manufacture.—The manufacture is essentially the same as that for Pabst-ett (A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals) (see THE JOURNAL, Oct. 24, 1931, p. 1227) excepting that process Swiss and process American cheese containing disodium phosphate only as emulsifier, salt, evaporated milk and concentrated milk whey are used.

Chemical Composition (submitted by manufacturer).—

	(sample as is) per cent	(moisture free basis) per cent
Moisture	44.8	....
Ash	5.2	9.4
Salt in ash	1.4	2.4
Fat (ether extract)	21.8	39.5
Protein (N × 6.38)	23.6	42.8
Lactose (by difference)	4.6	8.4
Phosphorus (P)	0.37	0.68

Calories.—3.09 per gram; 87.8 per ounce.

Vitamins.—The vitamin content is essentially that of Pabst-ett (A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals).

Claims of Manufacturer.—See this section for "Pabst-ett."

GOLD MEDAL MONEY MAKER FLOUR

Manufacturer.—Associate companies of General Mills, Inc., Minneapolis.

Description.—A hard wheat patent flour designed for commercial bakers' use; packed in sacks.

Manufacture.—The manufacture is essentially the same as that for Gold Medal Flour "Kitchen-Tested" (THE JOURNAL, Oct. 3, 1931, p. 1002) excepting that selected hard wheat is used. The milled flour is bleached and treated to improve the color and baking quality as described for Gold Medal Flour "Kitchen-Tested," although unbleached flour is furnished on request.

The flour is tested by the company's laboratory and experimental bake shop. The laboratory tests aid in controlling the mill operations; the experimental bake shop tests are to assure uniform baking results in commercial baking.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	13.0 –14.5
Ash	0.42– 0.46
Fat (direct ether extraction method)	0.8 – 1.2
Protein (N × 5.7)	10.5 –12.0
Crude fiber	0.4 – 0.5
Carbohydrates (by difference) other than crude fiber	74.9 –71.3

Calories.—3.49–3.44 per gram; 99.1–97.7 per ounce.

Claims of Manufacturer.—A good quality hard wheat patent flour designed to meet the requirements of the baking industry for an economical bread flour.

GORMAN'S EXTRA FINE BREAD (LIBERTY BOND), SLICED AND UNSLICED

A Milk Bread

Manufacturer.—Gorman's Bakery, Incorporated, Central Falls, R. I.

Description.—A white milk bread made by the straight dough method.

Manufacture.—The dough ingredients, a mixture of patent flours of Northwest and Southwest wheats, water, salt, sucrose, lard, sweetened condensed skim milk, fresh creamery butter, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate are mixed in a high speed mixer. The dough is fermented for from two and one-half to three hours. The fermented dough is molded into loaf form, panned, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper. The factory, equipment and storage rooms for the materials are kept in strictly sanitary condition.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.9
Ash	0.8
Fat (direct ether extraction method)	0.6
Protein (N × 6.25)	9.6
Crude fiber	0.3
Carbohydrates (by difference) other than crude fiber	52.0

Calories.—2.52 per gram; 71.6 per ounce.

Claims of Manufacturer.—A milk bread of good quality.

DROMEDARY MOIST COCOANUT

(Flavored with Sugar and Salt)

Manufacturer.—The Hills Brothers Company, New York.

Description.—A canned shredded coconut flavored with sucrose and salt; packed in tins in an atmosphere of carbon dioxide.

Manufacture.—The preparation is essentially the same as that for Dromedary Fresh-Keeping Cocoanut (THE JOURNAL, Oct. 24, 1931, p. 1227) excepting that the coconut mixture is dried to a moisture content of 18 per cent, no glycerin is added, and the final mix is packed in enamel-lined cans with the air replaced by carbon dioxide. The sealed cans are processed at 100 C. for thirty minutes.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	16.0
Ash	0.3
Fat (ether extract)	41.4
Protein (N × 6.25)	4.4
Reducing sugars as invert	0.5
Sucrose (by copper reduction)	25.3
Starch (acid hydrolysis method)	4.2
Crude fiber	4.2
Carbohydrates (by difference) other than crude fiber	33.7

Calories.—5.25 per gram; 149.1 per ounce.

Claims of Manufacturer.—A coconut food of good quality.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 7, 1931

EDUCATION, RESEARCH AND PHILANTHROPY

The science of medicine possesses but few philosophers; the scientific mind, indeed, is seldom given to philosophic reflection; it is more likely to be concerned with statements of fact and conclusions derived from them. Occasionally there emerge from some of the scientific fields men who are willing to take thought of conditions as they are, to cogitate on the circumstances that evolved these conditions and to contemplate the possibilities for the future. Such an analysis has recently been made by Dr. Hans Zinsser,[1] who, under the title "The Next Twenty Years," made audible his musings in an address given at the dedicatory exercises of the new Lakeside Hospital in Cleveland.

Viewing the present situation, Dr. Zinsser pointed out that the 166 medical schools of 1910 have gradually diminished to some 70 institutions, which are educating a sufficient complement of doctors for the needs of our nation, incomparably better in quality than their predecessors. Indeed, he says, "The competence of our faculties, the selection of our students and, above all, our material resources have improved at a rate which no other educational movement has ever experienced in an equal period." The past quarter century has been a period of revolution. The next quarter century is more likely to be a period of stability. The revolution resulted in special emphasis on administrative and executive powers. Men who have made places for themselves in medical affairs have been primarily of the administrative and executive types. With the subsidence of the emergencies of organization, Dr. Zinsser sees the necessity for a certain amount of administrative demobilization. He feels indeed that the time has come when educational initiative, influence over appointments, policies of curriculum and university relations should no longer be guided by political expediency or philanthropic necessity but be submitted to leaders who have the qualities of scholars among scholars. In other words, he would avoid the estrangement between faculty and management which feverish days of reorganization have threatened to establish.

Among the policies that have given particular concern to leaders in medical affairs in recent years are some that seem to have been the outgrowth of pressure brought to bear in medical affairs by philanthropic foundations. Dr. Zinsser sees particularly the need for some type of readjustment of relationships existing between institutions of learning and these foundations. The publication in this journal of the letter of Francis Peabody on full time teaching in the clinical branches is an example of the harassing character of such domination. On this subject Dr. Zinsser is quite definite:

> Yet today the medical schools of the following universities—Johns Hopkins, Washington University of St. Louis, Yale, Columbia, Chicago, Cornell, Vanderbilt and Iowa—all of them considerably endowed by the Rockefeller Foundation, have adopted the full-time system more or less in the form advocated by some members of this foundation and opposed by many leaders of the medical profession and by not a few administrators. This may of course be due to the fact that these institutions have all recognized the greater wisdom of the plan. To some of us, wavering in our belief in Santa Claus, it would appear at least not impossible that willingness to adopt an educational policy may in some cases have been subconsciously influenced by the knowledge that such receptiveness to a new idea could, over night, convert an institution struggling to keep its head above water into an affluent one possessing all the material tools for fine performance and future expansion. Accurate controls in this reasoning—which, as a bacteriologist, I would desire—are lacking, since I know of no institutions that have been offered the money and have refused it. But, on the other hand, I know of others that now have neither the full-time system nor the money.

It is not implied by Dr. Zinsser that full time teaching may be completely without merit, although he is convinced that it will not produce great clinicians of the type of Osler, Janeway, Strümpell or Nothnagel. He cites the situation rather as an example of the way in which foundations may indirectly stimulate fundamental changes in an educational system and determine policies, whereas it is extremely unlikely that, except by accident, the judgment of administrators of foundations on educational problems can in general be as wise and sound as that of teachers in the universities and institutions which they would dominate.

Dr. Zinsser has seen also the crying need of the times for men: for highly trained teachers, clinicians and investigators. There has been in the past quarter century a conflict between the desire to train good clinicians and good investigators. The reproach is heard that our best schools are training poor investigators instead of good doctors. It is realized now that investigation and teaching are inseparably linked. The teacher must remain a student if he is to progress. The investigator must realize that teaching is an inspiration and not look on his work of instruction as a mechanical process.

To the well known overproduction of nonproductive research Dr. Zinsser pays particularly caustic attention:

> We have developed the habit of judging men for positions by the perusal of the titles of their publications, and a list three pages long is more formidable than one of a few lines.

1. Zinsser, Hans: The Next Twenty Years, Science **74**: 397 (Oct. 23) 1931.

There is also a peculiarly sensational and sentimental appeal in medical discovery, and we are living in an age in which cheap performance, skilfully vulgarized, may have an enormous advertising value. And institutional rivalry, bidding for support, has had a tendency to foster the submission of results to public and inexpert applause before they have been passed upon in the rigid forum of technical criticism.

There has been, in consequence, a hot-house forcing of medical investigation which, together with some very brilliant and useful growth, has nourished the weeds of much second-rate material. There has also developed a curious halo about research which has exalted it above other and, in the absence of talent, more useful and less expensive methods of occupying time.

Particularly in the fields of cancer and tuberculosis, philanthropy has been exceedingly generous; but money has not been able to engender ideas. "In well equipped laboratories," says Zinsser, "many a man and woman is patiently sitting on a lifeless idea like a hen on a boiled egg." The prophylaxis for this situation Zinsser conceives to be the establishing of a consciousness of the dignity of research and its encouragement only for those who have proper talents and training and, above all, whose reverence for truth is generally recognized. Universities cannot enter financially into competition with manufacture and business for brains. However, it is beginning to be recognized that academic incomes must be respectably adequate to take care of the legitimate needs of a cultivated family of moderate size. In this way science, education and healing will be able to attract the type of mentality they require. With such material Professor Zinsser feels the future of medicine is secure. He ends on a high note:

Whatever the changes or trials that an uncertain future may hold, nothing can alter the intrinsic purposes of medicine, the very definition of which must be stated in words of action, to increase in wisdom and skill for the relief of suffering and the solace of sorrow—to serve men, their bodies and their minds—indiscriminately in a spirit that transcends social, racial and national distinctions. In all the rivalries and hatreds and mutual distrusts that hold the political and economic world in a grip of terror, medicine has no part. It is the one activity that, through these years of upheaval and revaluation of ideas and institutions, has had no need to alter its standards or its aspirations; it has known no enmities and recognized no national boundaries. Epidemic, sickness, physical suffering wipe out all this, and unite all men in sympathy and human equality.

MOTTLED ENAMEL

Mottled enamel is a condition in which the enamel of the teeth appears a flat, opaque white, may be stained yellow, brown or black, and in addition may have a corroded surface. Histologically, mottled enamel may be distinguished by the absence of cementing substance between the enamel rods. The condition is of endemic origin, and, curiously enough, dental caries is infrequent in teeth with this defect. The area of prevalence of the disturbance is, in general, in the Mississippi Valley and Rocky Mountain region. Many theories have been put forward to explain the incidence of mottled enamel. Apparently it may be prevented by distillation of the water or a change of water supply. That mottled enamel resulted from some factor associated with the water supply was shown in a report of the United States Public Health Service.[1] Kempf and McKay suggested, after a statistical study, that a further study some six or seven years after a domestic water supply had been changed would indicate whether the disease has been influenced by the change. Evidence from other sources indicates that the question may be solved in less time. Dr. McKay deserves in large measure the credit for having called attention to this condition in various parts of the country and for having instigated many investigations on the subject.

That a constituent of the water is the causative factor has been indicated by several recent investigations. University of Arizona investigators[2] have placed the etiology solely on the content of fluorine in the water. These investigators found that water from St. David, Ariz., contained abnormally high amounts of fluorine, approximately 4 to 7 mg. per liter, in contrast to from 0 to 0.3 mg. from nonendemic water supplies. Their observations accorded with the high value found by Churchman for a supply of water at Bauxite, Ark., as reported earlier by Kempf and McKay. Conditions simulating mottled enamel were produced in experimental animals that were given St. David water to drink. At about the same time, Churchill, working in the laboratories of the Aluminum Company of America, examined a number of sources of water of the United States for fluorine. Although expressing reservations on the causal connection between mottled enamel and the occurrence of fluorine, his analytic results show a large content of fluorine in water from wells in districts where mottled enamel of the teeth is endemic.

In 1925, McCollum and his co-workers[3] produced an abnormal effect in the structure of rats' teeth by feeding sodium fluoride. At that time McCollum did not associate the condition with fluoride in the diet. These reports, taken together, appear to give reasonable ground for the presumption that the cause of mottled enamel lies in the high content of fluorine in water. Further investigations to substantiate the preliminary results will be awaited with interest.

Churchill has suggested that chemists interested in water supply might well give attention to the problem of the control of the concentration of fluorides in drinking water. In view of the observations of McClure and Mitchell,[4] who reported the influence of fluorine in the diet on bone structure, Churchill inquires, first, what physiologic effects may be produced by these fluorides, and, secondly, what water chemistry can contribute to the control of concentration

1. Kempf, G. A., and McKay, F. S.: Mottled Enamel in a Segregated Population, Pub. Health Rep. **45**: 2923 (Nov. 28) 1930. Mottled Enamel in Segregated Populations, editorial, J. A. M. A. **96**: 775 (March 7) 1931.

2. Smith, Margaret C.; Lantz, Edith M., and Smith, H. V.: The Cause of Mottled Enamel, a Defect of Human Teeth, Technical Bulletin 32, University of Arizona College of Agriculture, June 10, 1931; Science **74**: 244 (Sept. 4) 1931.

3. McCollum, E. V.; Simmonds, Nina; Becker, J. Ernestine; and Bunting, R. W.: The Effect of Additions of Fluorine to the Diet of the Rat on the Quality of the Teeth, J. Biol. Chem. **63**: 553 (April) 1925.

4. McClure, F. J., and Mitchell, H. H.: The Effect of Fluorine on the Calcium Metabolism of Albino Rats and the Composition of the Bones, J. Biol. Chem. **90**: 297 (Jan.) 1931.

of fluorides. Here is a fruitful field for cooperation of water chemists, biologists, physicians, dentists, and public health workers generally. More serious diseases, such as typhoid, have been eradicated in this country by concerted action on sources of domestic water. It is not too much to expect from the promising data at hand that the combined efforts of these groups will make mottled enamel a condition of historical rather than actual interest.

Current Comment

MISSOURI—ONCE SHOWN—NOW WISE IN MEDICAL EDUCATION

The state of Missouri, having been repeatedly victimized in the granting of charters to fly-by-night medical colleges, seems with age to have acquired wisdom. Petitioned recently to grant a petition for a pro forma decree of incorporation for the National College of Medicine and Surgery, the courts appointed former circuit judge Harry E. Sprague to investigate the nature of the proposed institution. The Missouri State Board of Health had filed an objection against the granting of this decree through its attorney, Arthur J. Freund. The objection pointed out that the college was not planned for benevolent, religious, educational or scientific purposes but for purposes of profit and that, therefore, it would not constitute a reputable medical college. In its petition for incorporation the college asserted that it was to be a class B institution for homeopathy and surgery, admitting students with a high school training to its courses. The attorney for the National College, one J. Henry Caruthers, asserted that the state board of health charges were anticipatory. The petitioners for the proposed school, F. E. Deal, William R. MacCready and W. F. Walker, were certainly not the type of persons one would select as organizers of a medical school. Deal is an advertising man, MacCready an insurance broker and Walker a graduate in 1922 of the St. Louis College of Physicians and Surgeons, with thirteen months of practice in Little Rock, Ark. The charter of this college was revoked in 1927 on the charge of being a diploma mill. The Missouri State Board of Health had denied him licensure. Judge Sprague, when the case was called before circuit judge Killoren, objected to dismissal of the petition because the proponents of the institution had failed to appear in court. He asserted that he wished to present in their presence all the evidence that he had gathered in order "to prevent, once and for all, the establishment of the college." The lawyer for the petitioners then read a letter stating that they wished to dismiss their application. As still further evidence of the exceptional attitude of leading Missourians in such affairs, Judge Sprague and the counsel for the Missouri State Board of Health declined to accept fees for their services, since they had acted for the common good. Elsewhere in this issue a tale is told of how good old Massachusetts, with some hundreds of years of history behind her, is trying to solve an equally serious situation. Long suffering Missouri is showing her the way.

THE ANTIRACHITIC EFFECT OF SUNSHINE

The part that unobstructed sunshine may play in the prevention of rickets or in the correction of osseous defects of this disorder has become familiar to every physician through the scientific researches of recent years.[1] Fortunately skyshine on a bright, clear day may also contribute some wholesome effects. The potencies are due, of course, to the amount of solar ultraviolet rays that reach the exposed parts of the human organism. Cloudiness, smoke and fog greatly diminish the efficacy of the solar radiation. In a recent issue of THE JOURNAL,[2] attention was directed to the comparatively high antirachitic action of Colorado sunshine, with relatively little seasonal variation. Lewis, Frumess and Stein[3] of the University of Colorado School of Medicine in Denver ascribed this to the fact that throughout the year in Colorado relatively short wave radiations reach the earth as a result of the high percentage of winter sunshine, the low humidity, and the small amount of smoke in the atmosphere. Other observers have repeatedly called attention to a seasonal variation in effective sunshine—a feature which the Colorado investigators did not experience to any noteworthy extent. Tisdall and Brown[4] of Toronto have pointed out that changes in antirachitic effect, so far as they are associated with seasons, are apparently largely dependent on the altitude of the sun above the horizon. When the sun is low in the sky the rays necessarily pass through a greater amount of the earth's atmosphere, and the short biologically active rays are markedly diminished. It is stated that the critical altitude of the sun is 35 degrees, below which the rays produce only a slight antirachitic effect. Recently, in a review of some of the earlier work,[2] Tisdall and Brown[5] have remarked that altitude is a factor to be taken into consideration in evaluation of the effects of sunshine. There are a few favored places in the world, they state, such as Switzerland and Colorado, where the height above sea level is so great that the air mass through which the sun's rays must pass before reaching the earth's surface is materially reduced. Altitude as well as latitude thus plays a part in making sunshine effective antirachitically. In Denver, at an altitude of 5,300 feet above sea level, considerable of the sun's rays pass through the air mass even when their source is less than 35 degrees above the horizon. The surplus of bright sunshiny days in Colorado is thus enhanced by the advantages of altitude in preventing loss of ultraviolet rays. The most thickly populated sections of the temperate zones, however, are situated at an altitude of less than 1,000 feet, and have to reckon with seasonal variations as well as atmospheric contaminations.

1. Hess, A. F.: Rickets, Osteomalacia and Tetany, Philadelphia, Lea & Febiger, 1929. Blunt, K., and Cowan, R.: Ultraviolet Light and Vitamin D in Nutrition, University of Chicago Press, 1930.
2. Colorado Sunshine, editorial, J. A. M. A. **96**: 1088 (March 28) 1931.
3. Lewis, R. C.; Frumess, G. M., and Stein, H. B.: A Comparison of the Antirachitic Effects of Winter and of Summer Sunshine in Colorado, Am. J. Dis. Child. **41**: 7 (Jan.) 1931.
4. Tisdall, F. F., and Brown, Alan: Relation of the Altitude of the Sun to Its Antirachitic Effect, J. A. M. A. **92**: 860 (March 16) 1929.
5. Tisdall, F. F., and Brown, Alan: A Note on the Seasonal Variation in the Antirachitic Effect of Sunshine, Am. J. Dis. Child., to be published.

EFFECT OF COFFEE ON THE BASAL METABOLISM

In view of the fact that millions of pounds of coffee are used in the United States alone each year for beverage purposes, it is surprising that so little dependable scientific information should be available with respect to the actual physiologic effects of the substance. The most potent constituent of coffee decoctions doubtless is the purine derivative caffeine, which is known as a mild metabolic stimulant. It also modifies the circulation by stimulating the heart and relaxing the vessels by direct action. Excessive doses may produce insomnia, nervousness, headache, palpitation and nausea or vomiting, especially in susceptible persons. As a drug, caffeine is particularly useful in collapse by causing rise in blood pressure. The medicinal dose [1] is usually given as 0.15 Gm. (2½ grains). A cup of the beverage made from a tablespoonful (15 Gm.) of ground coffee is likely to contain from 0.1 to 0.2 Gm. (1½ to 3 grains) of caffeine. Accordingly it is quite conceivable that even the moderate use of coffee should have some action on the bodily functions. In addition to caffeine the decoction contains a substance vaguely described as caffetannic acid, as well as a small amount of volatile oil to which the flavor and aroma are commonly attributed. What physiologic effects, if any, are attached to these components remains problematic despite the pseudoscientific claims and the blatant nonsense so widely heralded about the subject. Physicians are continually being importuned to give advice regarding the use or abuse of coffee; and usually they find themselves compelled to repeat traditional admonitions, or to disregard them, as the case may be. The experience of millions of moderate coffee drinkers speaks against any acute dangers or profound damage from the beverage. Obviously the chronic effects must be subtle and only slowly developed at most. A recently secured illustration of what this may mean has just been published by Helen Hackett [2] from the University of Oklahoma. Because coffee is considered so generally to be a stimulant, she investigated whether the habitual moderate drinking of coffee, say one or two cups a day over a period of years, has any detectable effect on the basal metabolism of young women. All of these were within 10 per cent above or below the standard weight for height and age, and in apparent excellent health, without organic defects that might affect the basal metabolic rate. The coffee drinkers, in these tests, were persons who drank the beverage daily at breakfast and occasionally at other times. The non-coffee drinkers exhibited an average basal metabolism of 50.2 calories per hour; the coffee drinkers showed, under otherwise comparable conditions, an average of 53.2 calories per hour. The investigation of the college women showed that more non-coffee drinkers than coffee drinkers were found in groups with somewhat low metabolic rates or that the metabolism of the coffee drinkers tended to be higher than that of the non-coffee drinkers. Using the Harris-Benedict prediction figures, the average deviation of fifteen women not accustomed to coffee drinking was —9 per cent; for fifteen coffee drinkers the corresponding figure was —5.1 per cent. These are small differences at most, though Hackett draws the conclusion from them that the drinking of coffee over a period of years has a tendency to raise slightly the basal metabolism of normal young women.

1. Useful Drugs, ed. 8, Chicago, American Medical Association, 1930.
2. Hackett, Helen: The Effect of Coffee on the Basal Metabolism of Young Women, J. Home Economics **23**: 769 (Aug.) 1931.

THE INTERNATIONAL UNIVERSITY SPONSORS A "MEDICAL SCHOOL"

A new medical school has appeared in Massachusetts under the auspices of the "International University," incorporated under the laws of Rhode Island in 1930. The medical teaching is to be done in Massachusetts under the auspices of another corporation, known as the "Progress Alliance," but degrees will be conferred in Rhode Island. It is announced that four full years of medicine and two years of premedical work will be required, yet the school deems it necessary to conduct evening classes. Another peculiar statement in the prospectus is that a "year of internship or its equivalent is required *after the student receives the degree of M.D.*" How such a requirement can be enforced after the degree has been conferred is not explained. The *New England Journal of Medicine* [1] writes:

> When one seeks information from the prospectus in regard to the educational facilities of this institution, one finds very little helpful specific information. It is stated that "the Boston City Hospital, one of the largest in the country, is located near this university. Numerous other hospitals and clinics are available to our students." There is no detailed statement in regard to laboratory facilities, nor does there appear any statement in regard to faculty after naming the President and Dean and his secretary, except that the Dean is "assisted by an able faculty of professors and instructors in modern medicine and surgery."

If the heads of this faculty include some of those named in the "Original Articles of Association," grave doubts may be entertained as to the quality of the teaching that will be carried on. Among the persons named therein, one is an official of the College of Physicians and Surgeons of Boston, whose graduates are refused licensure by forty-seven states; another is an osteopath licensed to practice medicine and surgery in Massachusetts; another is a graduate of the St. Louis College of Physicians and Surgeons, not licensed to practice in any state, and another attended the College of Physicians and Surgeons of Boston but by some peculiar arrangement received his medical diploma from the Kansas City College of Medicine and Surgery, being finally licensed in Connecticut after three attempts. None of these physicians are members of their county or state societies or of the American Medical Association, nor is there any evidence that they are qualified to conduct a medical school. Several "medical schools" not deemed worthy of that name by the American Medical Association still exist. Among their students are many who have been disappointed in securing admission to an approved medical school or who have failed to pass the examinations in a class A

1. The International University: College of Medicine and Surgery, New England J. Med. **205**: 736 (Oct. 8) 1931.

school. Such students should endeavor to improve their educational qualifications rather than be content to attend a second-rate medical school. What of their futures in the medical profession? Is there any future for them? Would they not be wiser, indeed, to seek other vocations?

Association News

THE NEW ORLEANS SESSION

Application Blanks for the Scientific Exhibit

Circular letters containing information on the Scientific Exhibit for the 1932 session, together with the application blanks, have been mailed. The final date for filing applications is Jan. 20, 1932, and assignments will be sent out shortly after February 10. Any who desire to receive the circular letter and application blank should mail a request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago. The Committee on Scientific Exhibit requires that all applications for space must be made on the regular application form.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 9:15 a. m. on Monday and 11:15 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

November 9. Safe Water for Rural Homes.
November 14. Scarlet Fever.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Society News.—Dr. Edwin Laurence Scott, Birmingham, addressed the Pike County Medical Society, October 13, on bone diseases.——At a meeting of the Baldwin County Medical Society at Bay Minette, September 3, Drs. Horace J. Sims, Daphne, spoke on colitis, and Jesse F. Bryars, Bay Minette, anterior poliomyelitis.——Dr. William H. McCaslan, Union Springs, among others, addressed the Bullock County Medical Society recently on "Summer Diarrheas in Infants and Young Children."——A barbecue featured the meeting of the Cullman County Medical Society, September 17.——At a joint meeting of the Marshall County Medical Society and its northeastern division, September 9, Drs. Irwin P. Levi, Anniston, among others, spoke on "New Causes of Fracture of the Patella," and Cecil D. Gaston, Birmingham, "Diagnosis and Treatment of Malignant Diseases of the Colon and Rectum."

CALIFORNIA

University News.—The semiannual alumni day for all practicing physicians who hold degrees from the University of California School of Medicine, San Francisco, will be held, November 20. The morning will be spent in ward rounds and operations, and the afternoon in lectures and demonstrations.

Licenses Revoked.—At the regular meeting of the state board of medical examiners, October 20, the licenses of the following were revoked:

Dr. Woodward Bruce Mayo, Los Angeles, holder of physician and surgeon's reciprocity license based on Utah credentials; revocation based on alleged illegal operation.

Dr. Denwood N. L. Newbury, Spokane, Wash., holder of physician and surgeon's license to practice in California; revocation based on report of narcotic addiction.

Dr. Eugene Lee Settles, San Diego, holder of physician and surgeon's license; revocation based on alleged narcotic addiction.

George De Normandy Gillespie, D.C., San Francisco, holder of drugless practitioner's certificate and certificate to practice chiropody; both revocations based on record of conviction of second degree murder reported to have arisen from an alleged illegal operation.

Southern California Medical Association.—The eighty-fifth semiannual meeting of the Southern California Medical Association will be held at the Hotel Roosevelt, Hollywood, November 13-14, under the presidency of Dr. Fred B. Clarke, Long Beach. The program includes papers by Drs. Ralph T. Richards, Salt Lake City, Utah, on "New Method of Treating Burns"; E. Eric Larson, Los Angeles, "Subtotal Gastric Resection"; Willis S. Lemon, Rochester, Minn., "Gross and Cellular Response of the Pleura to Foreign Material and the Process of Its Elimination Through Lymphatic Tracts"; Philemon E. Truesdale, Fall River, Mass., "Prolapse of the Uterus"; Samuel Ayres, Jr., and Nelson P. Anderson, Los Angeles, "Use of the Patch Test in the Diagnosis of Contact Dermatitis"; Clifford G. Grulee, Chicago, "Care and Feeding of Premature Infants"; Albert Kuntz, St. Louis, "Relationship of the Autonomic Nervous System to Various Clinical Problems"; Daniel Crosby, Oakland, "Medical Economics"; and Raymond G. Taylor, Los Angeles, "Some of the Causes of Failure in Treatment of Cancer." Dr. George W. Crile, Cleveland, will show a talking motion picture on the thyroid gland, and Karl F. Meyer, Ph.D., San Francisco, will give an illustrated lecture on rabies.

DELAWARE

Personal.—Dr. Ernest F. Smith, Georgetown, has been appointed health officer of Kent County; Dr. John R. Downes, Newark, health officer of New Castle County, and Dr. Everett Reynolds, New Castle, of Sussex County.

State Medical Election.—Dr. George C. McElfatrick, Wilmington, was installed as president of the Medical Society of Delaware at its recent annual meeting in Wilmington, and Dr. Ulysses W. Hocker, Lewes, made president-elect. These officers will serve beginning January 1. Dr. William O. La Motte, Wilmington, was reelected secretary. The next annual session will be held at Rehoboth.

DISTRICT OF COLUMBIA

Health at Washington.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended October 24, indicate that the highest death rate (18.2) appears for Washington, and the rate for the group of cities as a whole, 10.8. The rate for Washington for the corresponding period last year was 14.4, and the rate for the group of cities, 11.1. The annual rate for eighty-two cities for the forty-three weeks of 1931 was 11.9; the same rate appears for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

FLORIDA

Police Seek Forger.—Police in Jacksonville, Miami, Key West, Tampa, Deland and Lake City are reported to be looking for a man who is giving out forged checks in the name of Dr. Thomas Henry Bates, Lake City. According to Dr. Bates, this is the same man who was recently reported to be impersonating Dr. James M. Acker, Aberdeen, Miss. (THE JOURNAL, October 24, p. 1233). He presents a card bearing the name of Dr. Bates as owner of the Lake Shore Hospital, Lake City. He is almost 5 feet 9 inches tall and weighs 160 pounds. His eyes are light and he wears spectacles.

Cooperation in Control of Child Health.—At a meeting of the Pasco-Hernando-Citrus County Medical Society, September 10, following the reading of a resolution concerning the health of school children, plans and methods were adopted which assured the society's cooperation with schools and families in the elimination and prevention of certain conditions which affected children's health. According to the plans, articles, which had been submitted to the society for approval and which would cover preventable disease and methods of prevention, would be published in the newspapers of the three counties; mothers would be instructed as to the proper time of immunization; contact with parents and the public schools would be made, and the society would cooperate with the state board of health. It was also provided that other methods of cooperation would be adopted from time to time, if found feasible. This agreement was suggested by a committee composed of Drs. George R. Creekmore, Brooksville, Thomas F. Jackson, Dade City, and George A. Dame, Inverness. The resolution cited statistics indicating that 25 per cent of all deaths from all

causes are of children of preschool age, and that medical examinations of children of school age in Florida show that 80 per cent are burdened by one or more defects that handicap their school work and lessen their earning capacity in later life.

IDAHO

State Medical Election.—At the annual meeting of the Idaho State Medical Association in Boise, September 29-30, Dr. Edward N. Roberts, Pocatello, was chosen president-elect, and Dr. Harold W. Stone, reelected secretary. The next annual session of the association will be held in Pocatello. These elections will take effect in January, when Dr. Joseph N. Davis, Kimberly, elected in 1930, will become president.

ILLINOIS

Society News.—At the eighty-fifth annual meeting of the Aesculapian Society of the Wabash Valley, Paris, the speakers included Drs. Otto H. Crist, Danville, "My Experience with Gynoplastic Repair of Old Lacerations Following Delivery"; Julius R. Yung, Terre Haute, Ind., "Goiter and Injuries to the Parathyroids," and Leslie P. Sloan, Oblong, "An Interesting Case of Tularemia."——Dr. Jonas Curtis Lyter, St. Louis, addressed the Randolph County Medical Society, October 20, on diagnosis and treatment of diseases of the heart.——The Pike County Medical Society was addressed, October 22, by Dr. Dudley T. Dawson, Danville, on "Responsibility of the Psychiatrist to His Community."——Dr. Samuel M. Feinberg, Chicago, addressed the Will-Grundy Medical Society at Joliet, November 4, on allergy.——Dr. Walter L. Palmer, Chicago, addressed the Peoria City Medical Society, November 3, on "Peptic Ulcer: Experimental and Clinical Considerations."——The Knox County Physicians' Club will be addressed by Dr. Aaron Arkin, Chicago, November 10, on "Pulmonary Diseases and Their Differential Diagnosis."

Chicago

Physician Sentenced on Narcotic Charge.—Dr. Maurice J. Rabbins, a police surgeon for seventeen years, began to serve his sentence of a year and a day in the federal penitentiary at Leavenworth, Kan., October 17, having been found guilty of violation of the Harrison Narcotic Act.

Supreme Court Denies Rongetti's Appeal.—Dr. Amante Rongetti began his sentence in the United States Penitentiary at Leavenworth, Kan., October 17, having been found guilty of violation of the Harrison Narcotic Act and sentenced, October 2, to serve three years in prison. The U. S. Supreme Court, October 26, denied the plea of Dr. Rongetti for a review of the Illinois Supreme Court's decision affirming his conviction on a charge of manslaughter, according to press reports. Rongetti was sentenced, Aug. 12, 1930, to imprisonment from one to fourteen years for manslaughter on a charge of causing a death by an illegal operation. In his first trial, Rongetti was sentenced to death. When the supreme court granted a new trial, he was found guilty of manslaughter. The recent decision of the U. S. Supreme Court is the result of Dr. Rongetti's appeal, it is reported.

Society News.—Dr. James B. Herrick addressed the Medical History Club of the University of Illinois College of Medicine, October 28, on "Auenbrugger and Laënnec."——Dr. Frederick H. Falls was elected president of the Chicago Gynecological Society at its annual meeting, October 16, and Dr. Julius E. Lackner was reelected secretary.——The Chicago Society of Industrial Medicine and Surgery was addressed, November 4, by Dr. Frederic A. Besley, Waukegan, Ill., on "Skeletal Traction in Fractures of Long Bones" and "Present Status of Industrial Medicine and Traumatic Surgery."——Dr. Julian H. Lewis will speak on "Antigenic Relationship of the Lipoids from Brain and Testicles" at the November 9 meeting of the Chicago Pathological Society.——Dr. Joseph Colt Bloodgood, Baltimore, will address the Chicago Roentgen Society, November 11, on bone tumors.

KANSAS

Society News.—Dr. Lawrence P. Engel, Kansas City, Mo., addressed a joint meeting of the Golden Belt Medical Society and Saline County Medical Society, October 1, in Salina, on "Surgical Treatment of Goiter"; Dr. Andrew W. McAlester, Kansas City, spoke on "Diagnosis and Treatment of the Commoner Diseases of the Eye," and Dr. Oman R. Brittain, Salina, "The Shoulder Joint."——The October 20 meeting of the Sedgwick County Medical Society was addressed by Drs. Bruce P. Meeker, Wichita, on "County and Charitable Institutions"; Clarence A. Darnell, Wichita, "School Health," and Harold W. Palmer, Wichita, "Hypothyroid States." The society was addressed, October 13, by Drs. R. C. Hutcheson, Elk Falls, on "Some Observations of Fifty Years"; Howard Snyder, Winfield, "Analysis of Spinal Anesthesia Cases," and Edwin D. Ebright, Wichita, "Shakespeare's Doctors."——A symposium on infections of the liver and gallbladder featured the meeting of the Clay County Medical Society, September 9. The speakers were Drs. Eugene P. Hamilton and Charles Edgar Virden, Jr., both of Kansas City, Mo.——Dr. James W. Kennedy, Philadelphia, addressed the Shawnee County Medical Society, October 5, on peritonitis.——Dr. Lewis W. Angle, Kansas City, addressed the Wyandotte County Medical Society, October 20, on "Chemical Obliteration of Varicose Veins," illustrated.

LOUISIANA

Urological Society Organized.—The New Orleans Urological Society was organized, October 26, in the board room of the Orleans Parish Medical Society. Officers elected for the ensuing year are: Drs. Frank J. Chalaron, chairman; John G. Pratt, vice chairman, and Robert M. Willoughby, secretary-treasurer. The charter members of the society include, in addition to the officers, Drs. Hugh T. Beacham, Edgar Burns, Robert L. Gordon, Joseph Hume, Edward J. Huhner, Pierre J. Kahle, Henry J. Lindner, Roger J. Mailhes, Abraham Mattes, Edward P. McCormac, Cassius L. Peacock, Robert F. Sharp, William A. Reed, Eugene B. Vickery, Henry W. E. Walther and Monroe Wolf.

Shreveport's Fall Clinic.—The 1931 fall clinic was held at Charity Hospital, Shreveport, October 21-23. The surgical clinics included breast amputation, using electrosurgical unit, Dr. Edgar L. Sanderson; hernial repair under spinal anesthesia, Dr. Shelton W. Boyce; electrothermic conization of the cervix, Dr. John B. Younger, and bladder neck obstructions and their management, Dr. Isidore B. Rougon. Subjects included in the obstetric department were operative obstetrics, Dr. Harvey T. Best; conduct of normal delivery, Dr. Benjamin J. Cole, and antenatal hemorrhages, Dr. Edgar Galloway. The subjects covered in the clinics on internal medicine and allied branches and x-rays comprised, among others, peptic ulcers, their complications with special reference to hemorrhage, Dr. Joseph E. Knighton, Sr.; iodized oil in the diagnosis of spinal cord lesions, Dr. Douglas L. Kerlin, and diverticula of the alimentary tract, illustrated, by Dr. William J. Norfleet. Special sessions were held also for the presentation of cases by guests. There were 246 physicians in attendance from Louisiana, Arkansas and Texas.

MASSACHUSETTS

Personal.—Dr. Henry Alden Shaw has been appointed assistant professor of mental hygiene at Harvard University Medical School. Dr. Shaw was formerly a member of the Medical Corps of the U. S. Army, having retired with the rank of colonel in 1921. He has been associated with the medical school since 1926 as assistant in hygiene and as psychiatrist.——Percy R. Howe, D.D.S., Boston, professor of dental science at Harvard University, was awarded the Fauchard medal for his research on the influence of diets on teeth, October 21, at the annual convention of the American Dental Association in Memphis.

State Conference on Child Health.—A state campaign for the application of the findings and recommendations of the White House Conference on Child Health and Protection was begun, October 6-10, when a local conference was held consisting of two meetings in Boston and Springfield. According to the *Massachusetts Health Journal*, this was the beginning of a year's effort to have carried out into all communities in the state those features of the four general divisions of the conference which are found to be needed in the localities. Dr. Mary R. Lakeman of the state department of health is executive secretary of the Massachusetts committee of the White House Conference. Included on the scientific program were Drs. Haven Emerson, New York, LeRoy M. S. Miner, Boston; George H. Bigelow, Boston, state health commissioner; Charles F. Wilinsky, Boston, and Wilson G. Smillie, Boston.

MICHIGAN

Hospital Trust Fund.—The establishment of a $2,000,000 trust fund to erect and equip two hospitals in Detroit is provided for in the will of the late Emma J. Farwell. The hospitals will be largely devoted to charitable work. One institution will be devoted to contagious diseases, while the other will deal with ailments of the ear, eye, nose and throat. Both institutions will be known as the Farwell Foundation Hospitals. The will also provides a bequest of $100,000 to the Protestant

Orphan Asylum, Detroit, and $10,000 to the Children's Hospital, Detroit.

Graduate Course.—Diseases of the heart and circulatory systems were considered in the first graduate course arranged by the department of postgraduate medicine of the University of Michigan Medical School, Ann Arbor, and the Michigan State Medical Society, November 3-7. Those assisting in the course were Dorothy S. Waller and Drs. Frank N. Wilson, Archibald G. MacLeod, David M. Cowie, Fred J. Hodges and Carl V. Weller, all of Ann Arbor; Norman E. Clarke and Robert L. Novy, Detroit. It is planned to devote these graduate courses to special disease groups.

Annual Clinical Conference.—The Jackson County Medical Society and the councilor district held their annual clinical conference in Jackson, November 5. Included on the program were Drs. Frederick C. Warnshuis, Grand Rapids, who spoke on "Cranial Injuries"; Manuel G. Spiesman, Chicago, "Common Colon Conditions," illustrated; Kellogg Speed, Chicago, "Unhappy Results in the Treatment of Fractures," illustrated; William A. Thomas, Chicago, "Mechanism of Nephritis and the Proteins of the Urine"; Ralph Pemberton, Philadelphia, "Arthritis," and Charles H. Mayo, Rochester, Minn., "Unappreciated Hepatic Functions." Dr. Frank E. Whitacre, Chicago, showed motion pictures of the forceps operation by Dr. Joseph B. DeLee's technic.

MINNESOTA

Naturopath Sentenced.—Dana L. Hewett, naturopath, was arrested at Anoka, October 16, and charged with practicing healing without a basic science certificate. In advertising himself, Hewett said that he "removed the cause and nature completed the work," and that he treated successfully functional and organic diseases. Following his arrest, Hewett waived his preliminary hearing and was held to the district court under bond of $500. He entered a plea of guilty, October 21, and was sentenced by Judge Arthur E. Giddings to a term of forty days in the county jail. The sentence was suspended and the defendant placed on probation on condition that he refrain from practicing healing in the state.

Society News.—Dr. Henry C. Cooney, Princeton, was elected president of the East Central Minnesota Medical Society recently, and Dr. Gregor E. Schoofs, North Branch, was elected secretary.——Dr. Francis E. Harrington, Minneapolis, was elected president of the Minnesota Trudeau Medical Society at its recent meeting.——Dr. Sidney A. Slater, Worthington, was elected president of the Southwestern Minnesota Medical Association recently; Dr. John T. Rose, Lakefield, vice president, and Dr. Eugene G. McKeown, Pipestone, reelected secretary.——The Nicollet-Le Sueur County Medical Association was addressed recently, among others, by Dr. Wilfred McKechnie, St. Peter, on "Treatment of Paresis by Malarial Inoculation."

NEW JERSEY

License Lost.—The New Jersey board of medical examiners reports that Dr. Fulvio Patella has lost his New Jersey certificate, numbered 7059. The license was issued, October 3, by endorsement of a Pennsylvania license.

Hospital News.—The Paterson General Hospital has established a clinic for the study, treatment and prevention of cancer through funds given by Hugh C. Lendrim, Paterson, as a memorial to his wife.——A ten-story obstetric hospital with a capacity of 275 beds, to be known as the Margaret Hague Maternity Hospital, was opened, October 1, as a unit of the Medical Center of Jersey City. This group now includes the Jersey City Hospital, the Jersey City Hospital for Contagious Diseases and the maternity hospital, and a psychiatric hospital is said to be in prospect.

Society News.—Dr. Thomas Grier Miller, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, October 9, on "Diagnosis and Management of the More Common Diseases of the Digestive System."——The Camden City Medical Society at its annual meeting, October 6, disbanded and transferred its activities to the Camden County Medical Society. The city society was organized in 1853.——Dr. Spencer T. Snedecor, Hackensack, addressed the Hudson County Medical Society, October 6, on "Medical Problems Afloat and Ashore."——Dr. Harry H. Lott, Philadelphia, among others, addressed the Burlington County Medical Society, Moorestown, September 9, on treatment of acute sinus infections by the general practitioner.——Dr. George Draper, New York, addressed the Morris County Medical Society, Greystone Park, September 30, on poliomyelitis.——Dr. Murray H. Bass, New York, addressed the Passaic County Medical Society, Paterson, September 4, on serum therapy.

NEW YORK

Poliomyelitis Victims Respond to Appeal.—More than 1,100 persons who had had infantile paralysis responded to the appeal of the state department of health for immune blood to be used for treatment during the recent epidemic. Of this number 1,011 contributed blood between July 27 and October 5. Eighty-seven donors gave blood twice and many other persons offered to do so, according to the bulletin of the department. Fifty of the fifty-seven counties in the state outside New York City are represented on the list. A reserve list of later volunteers is on file at the state laboratory.

New York City

Health Talks on Cancer.—A series of talks on cancer have been arranged by the New York City Cancer Committee to be given at the "Home Making Center," in the Grand Central Palace, as follows:

November 10, "Cancer: Its Nature and the Possibilities of Surgical Relief," Dr. George Emerson Brewer.
December 8, "Cancerous and Precancerous Conditions in the Mouth," Dr. Henry S. Dunning.
January 19, "Cancerous and Precancerous Conditions of the Skin," Dr. Robert H. Kennedy.
February 16, "Cancerous and Precancerous Conditions of the Breast," Dr. Burton J. Lee.

Lectures at the Academy of Medicine.—The program of the winter series of Friday afternoon lectures at the New York Academy of Medicine began with an address, November 6, by Dr. Charles Gilmore Kerley, on "Practical Points in the Management of Children's Diseases." Lectures in the coming weeks will be:

Diseases of the mouth and tongue, Dr. George H. Semken, November 13.
Roentgenology of certain acute abdominal conditions, Dr. Ross Golden, November 20.
Diseases of the female breast, Dr. Hugh Auchincloss, December 4.
Surgical possibilities in the treatment of anterior poliomyelitis, Dr. Armitage Whitman, December 11.
Pelvic pain in women, Dr. Walter T. Dannreuther, December 18.

Society News.—The New York Physicians' Club, a social organization, was recently organized with Drs. Harold M. Hays as president, Anthony Bassler, vice president, and Edward P. Eglee, secretary. The club has taken three floors of a building at 133 East Fifty-Eighth Street, which have been fitted for various types of recreation, a library and lounging rooms.——Drs. Edward L. Keyes and Martin B. Tinker, Ithaca, addressed the Queensboro Surgical Society, October 14, on "Principles of Prostatic Surgery" and "Technic of Goiter Surgery," respectively.——The annual dinner of the New York City Committee of the American Society for the Control of Cancer was held, October 29, at the Plaza Hotel; speakers were Dr. Shirley W. Wynne, Dr. Burton J. Lee, Clarence C. Little, Sc.D., and Rev. James M. Gillis.——At the meeting of the Medical Society of the County of Kings, October 20, addresses were made by Drs. Edward H. Cary, Dallas, President-Elect, American Medical Association, on "A Few Problems of the Modern Doctor"; Louis A. Van Kleeck, Manhasset, "We Must Organize," and Matthew Walzer, "Recent Developments in Diagnostic Methods in Asthma."——Dr. Oswald S. Lowsley, among others, addressed the Medical Society of the County of Queens, October 27, on "Newer Developments in Urologic Diagnosis and Surgery."——Dr. Ernest Granville Crabtree, Boston, addressed the New York Society of the American Urological Association, October 28, on "Total Perineal Prostatectomy for the Fibrous Prostate."——Dr. Herbert Willy Meyer addressed the New York Surgical Society, October 28, on "Congenital Cysts and Fistulae of the Neck."——Dr. James Ewing delivered the anniversary discourse of the New York Academy of Medicine, November 5, on "The University and the Medical Profession."

OREGON

License Revoked.—The license of Dr. Nels J. Lund, Portland, was revoked recently on the ground of unprofessional conduct in "the use of deceptive advertising," according to the bulletin of the Oregon State Medical Society.

Personal.—Dr. William E. Gregson, Baltimore, Md., has been appointed health officer of Coos County, succeeding Dr. James B. Gillis, Coquille, who has held the position temporarily since the resignation of Dr. Milton V. Walker, Powers.

Society News.—Drs. Edmund W. Simmons and John H. Labadie addressed the Portland City and County Medical Society, Portland, October 7, on diseases of the skin. The society was addressed, October 28, by Drs. Augustus B. Dykman on "Strabismus in Children," and Robert C. Coffey on "Transplantation of the Ureters into the Large Bowel by the Submucous Implantation Technic: Application of Research Problem to Clinical Surgery."

PENNSYLVANIA

Hospital News.—A new addition for the treatment of communicable diseases was opened, November 1, at the Harrisburg Hospital.——The Quakertown Community Hospital, a $200,000 structure financed by public subscription, was dedicated June 21.——The Lee Memorial Hospital, Bridgeport, was opened in June as a convalescent center.

Society News.—The Dauphin County Medical Society conducted a symposium on cancer, October 13, in which the speakers were Drs. Allen Z. Ritzman, George R. Moffitt, Mathew H. Sherman and Harvey F. Smith, Harrisburg.—— At the meeting of the Allegheny County Medical Society, Pittsburgh, October 27, the following addresses were given: "Infectious Mononucleosis," by Dr. Frank A. Evans; "Aviation Medicine," Dr. George R. Harris; and "Common Obstetrical Difficulties and Their Treatment," Drs. Harold A. Miller, William Paul Dodds and Maurice E. Hodgdon. —— Among speakers at a regional conference of the American Social Hygiene Association at Erie, November 5-7, were Drs. Edward L. Keyes, New York, on "What Social Hygiene Means to the Community"; Harvey M. Watkins, Polk, "Mental Hygiene in Social Hygiene Education" and William F. Snow, New York, "Social Hygiene in the White House Conference—and After."

Philadelphia

Contaminated Springs in Parks Closed.—Thirty-five out of eighty-nine springs in the city park system are reported to have been closed by the state and city health authorities after thirteen cases of typhoid with two deaths had been traced to the use of water from springs in two sections of the city. The city health department is analyzing all springs, closing all that are found to be contaminated. It was said that the springs were found safe at the last inspection several months ago. The city plans to conduct bimonthly tests henceforth, according to newspaper reports. The springs are the only source of drinking water in the parks, it was pointed out, and are much used by motorists as well as by persons living near.

Society News.—Dr. Franz J. Lang, professor of pathology and director of the Pathologic Anatomic Institute of the Leopold Franzens University Faculty of Medicine, Innsbruck, Austria, delivered the annual Gross lecture of the Pathological Society of Philadelphia, October 30, on "Generalized Osteitis Fibrosa and Its Relation to Osteomalacia and Rickets."——Sir Thomas Lewis of the University College Hospital Medical School, London, delivered the twenty-seventh annual Mary Scott Newbold Lecture before the College of Physicians of Philadelphia, October 28, on "Vasovagal Syncope and the Carotid Sinus Mechanism."——Dr. Maurice Muschat addressed the Philadelphia Urological Society, October 26, on "Massive Renal Hemorrhage Due to Regenerative Hyperplasia of the Collecting Tubules of the Kidney."

TEXAS

Fort Worth Clinics and District Meeting.—The semiannual meeting of the Fort Worth Medical and Surgical Clinics was held, October 13-14, in conjunction with the meeting of the Northwest Texas District Medical Society. Mornings were devoted to clinics at the Methodist, St. Joseph's, Cook Memorial and Harris Clinic hospitals and afternoons were devoted to reading and discussion of papers. Among speakers on the program were Drs. Arthur C. Scott, Temple, "Cervicitis and Its Relation to Cancer of the Cervix"; Jesse Bedford Shelmire, Jr., Dallas, "Endemic Typhus Fever"; William B. Carrell, Dallas, "Traumatic Injuries About the Knee Joint"; Joe D. Becton, Jr., Greenville, "Spinal Anesthesia in Surgery Below the Diaphragm," and Julius A. Heyman, Wichita Falls, "Treatment of Infections with Roentgen Rays." At a banquet, Tuesday, October 13, the speakers were Drs. Edward H. Cary, Dallas, President-Elect, American Medical Association, on problems of organized medicine, and William W. Duke, Kansas City, on allergy. Dr. Heyman was elected president of the society and Wichita Falls was chosen as the place for the spring meeting.

Society News.—Drs. Fred Terry Rogers, Ozro T. Woods and Richard M. Smith, Dallas, presented a symposium on pellagra before the Coleman County Medical Society, Coleman, August 6.—Drs. Frank C. Hodges and Mark Butler addressed the Taylor County Medical Society, Abilene, August 11, on "Fractures Above the Elbow" and "Acute Rheumatic Fever," respectively.——The Texas Pediatric Society will hold its fall clinical meeting in Houston, November 17. —— The Texas Public Health Association, formerly the Texas Association of Sanitarians, will hold its annual meeting, November 9-13. Two days will be devoted to laboratory work, one to the drought relief and malaria control programs and the remaining two days to a variety of public health problems. Dr. Harry K. Read, Houston, is president of the association.——Dr. Grace Humphreys Hood addressed the Tarrant County Medical Society, Fort Worth, October 6, on "Complete Anesthesia in Obstetrics."——Dr. George V. Brindley, Temple, addressed the Webb County Medical Society, Laredo, September 7, on carcinoma of the rectum and Drs. Frederick Fink, Charles A. Holshouser and William E. Nesbit, all of San Antonio, presented a symposium on chronic ulcerative colitis.——Dr. Carl E. Mangum, among others, addressed the Wichita County Medical Society, Wichita Falls, September 8, on "Atypical Cases of Allergy."——Among speakers at the meeting of the Texas Surgical Association, Houston, November 16-17, will be Drs. Curtice Rosser, Dallas, on "Essential Surgery for Chronic Ulcerative Colitis"; Kenneth H. Aynesworth, Waco, "Diagnosis and Treatment of Trifacial Neuralgia"; Charles S. Venable, San Antonio, "Intra-Abdominal Hernia of the Sigmoid Colon," and Albert O. Singleton, Galveston, "Operations on the Sympathetic Nervous System for Arterial Diseases of the Lower Extremities."——The Third District Medical Society met at Lubbock, October 27-28, with the following speakers, among others: Drs. John O. McReynolds, Dallas, "The Cataract Problem in Relation to the General Medical Profession"; Ray M. Balyeat, Oklahoma City, "Allergic Migraine — Diagnosis and Treatment"; Otis W. English, Lubbock, "Hyperemesis Gravidarum," and Julius T. Krueger, Lubbock, "Modern Aspects of Retrodisplacements of the Uterus."

VERMONT

Society News.—The annual fall meeting of the New England Society of Psychiatry was held at Brattleboro, October 8; Dr. William A. Bryan, Worcester, Mass., spoke on "Review of the Research Program at the Worcester State Hospital."

State Medical Election.—At the recent meeting of the Vermont State Medical Society in Rutland, Dr. Edward J. Rogers, Pittsford, was elected president, and Dr. William G. Ricker, St. Johnsbury, reelected secretary. The next annual session will be held at Burlington in October, 1932.

WASHINGTON

The Eyesight Swindlers.—*California and Western Medicine* recently reported that "eye specialists" swindled $4,100 out of one family through their purported radium cure for blindness. These "specialists" obtained $1,600 for putting a few drops of alleged radium water in the daughter's eye. Later two other members of the "company" appeared and told the family that the first doctor had been killed in an automobile accident, and that his dying wish was that they should return to see whether his treatment had been successful. After examination of the girl's eyes, they found "germs" still present, and obtained $2,500 additional as a deposit on a "marvelous" electric belt which they claimed was the only one in this country, having been obtained from a German scientist stranded here during the World War.

GENERAL

Further Warning Against H. H. Harvey.—Lea and Febiger, Philadelphia publishers, report that they have recently canceled their contract with H. H. Harvey, who was reported to be posing in the Northwest as a representative of the W. F. Prior Company (THE JOURNAL, September 19, p. 860). As he had been operating in Washington, Idaho and Montana and had expressed the intention of going into Utah, physicians in these states are warned to beware of him. Thomas Nelson and Sons, New York, recently took similar action when they discovered that a salesman employed by them under the name C. R. Mathison was really Harvey (THE JOURNAL, October 10, p. 1084).

News of Epidemics.—Bans on assemblies, swimming pools and social affairs imposed in the New York public schools because of the recent epidemic of infantile paralysis were lifted, October 26, as the disease was reported to have reached normal prevalence. Sixty-two cases were reported during the week ended October 25, making a total of 4,046 cases since January 1, with 462 deaths.——The immediate source of the epidemic of typhoid at the Cleveland State Hospital during September has been learned, according to the Cleveland *Press*. Investigators have found that a woman assigned to the kitchen was the first to become ill and thus probably infected more than 125 inmates. It had not been determined at the time of the report where this patient contracted the disease.——Diphtheria is reported to have been widely prevalent in Kentucky during September and October. The state board of health reported, October 20, that

epidemics prevailed in seventy counties; 250 cases with five deaths occurred during September. Newspapers reported that the board has distributed serum to inoculate 12,000 persons.—— An outbreak of twenty-four cases of scarlet fever was reported in October from Hocking County, Ohio.——Ten mild cases of paratyphoid fever occurred at the West Chester (Pa.) State Teachers College, between October 2 and 21.

Society News.—The Association of Military Surgeons of the United States will hold its annual meeting in New Orleans, November 30-December 2. The program includes, in addition to addresses, a clinic on tropical diseases at the U. S. Marine Hospital and a trip to the National Leprosarium, Carville.—— Dr. Hubley R. Owen, Philadelphia, was elected president of the National Association of Police and Fire Surgeons and Medical Directors of the Civil Service Commission of the United States at its recent meeting in Atlantic City, and Dr. Arthur Wildman, Brooklyn, secretary. The next annual session will be held in Montreal.——At the annual meeting of the American Association of Oral and Plastic Surgeons, Philadelphia, October 16, the following officers were elected: Dr. Ferris Smith, Grand Rapids, Mich., president; Chalmers J. Lyons, D.Sc., Ann Arbor, Mich., vice president, and Dr. Ernest Fulton Risdon, Toronto, Ont., secretary.—— The annual meeting of the National Society for the Prevention of Blindness will be held in New York, November 19. Dr. William Campbell Posey, Radnor, Pa., will give an address on "The Evolution of the Cataract Operation." Subjects for general discussion include medical social service in eye hospitals and clinics, preventing eye troubles in infants, sight-saving classes, trachoma research, and prevention of industrial eye injuries. Dr. Benjamin Franklin Royer, Philadelphia, for the past six years medical director of the society, has resigned, effective December 31, it has been announced.

Association of American Medical Colleges.—The forty-second annual meeting of the Association of American Medical Colleges will be held in New Orleans, November 30-December 2, with headquarters at the Hotel Roosevelt, and under the presidency of Dr. Maurice H. Rees, Denver. The following program has been announced: Drs. William Pepper, Philadelphia, "Health of Medical Students"; Herman G. Weiskotten, Syracuse, N. Y., "Tendencies in Medical Practice: Study of Class of 1925"; Elias P. Lyon, Minneapolis, "Heredity as a Subject in the Medical Curriculum"; Percy T. Magan, Los Angeles, "Rôle of the Medical School in the Development of Character in the Medical Student"; Frederick T. Van Beuren, Jr., New York, "Relationship between Medicine and Dentistry"; David J. Davis, Chicago, "Cooperation between the College of Medicine of the State University and Other State Departments in Illinois"; Fred A. Moss, Washington, D. C., "Report of Committee on the Aptitude Test"; Walter H. Moursund, Dallas, Texas, "Premedical Qualifications in Relation to Achievement in Medical College"; Gotthelf Carl Huber, Ann Arbor, "Graduate Work in Premedical Sciences"; Louis B. Wilson, Rochester, Minn., "Research in Graduate Medical Schools"; Waller S. Leathers, Nashville, Tenn., "Teaching of Preventive Medicine"; James R. McCord, Atlanta, Ga., "Postgraduate Extramural Teaching in Obstetrics"; Everett D. Plass, Iowa City, "Postgraduate Teaching in Obstetrics Through Extramural Courses"; Fred L. Adair, Chicago, "Obstetric Teaching: Résumé of Proceedings of White House Conference"; Horton R. Casparis, Nashville, "Pediatrics: Place in General Health Education Program," and Borden S. Veeder, St. Louis, "Pediatric Teaching: Résumé of Proceedings of the White House Conference."

FOREIGN

Testimonial Fund for Dr. Cox.—In recognition of the retirement of Dr. Alfred Cox as medical secretary of the British Medical Association, a testimonial fund is being collected to be presented to Dr. Cox during the annual meeting of the association in 1932. The completion of Dr. Cox's term of twenty-five years of service will coincide with the centenary meeting of the British Medical Association in that year. A volume containing the names and addresses of all subscribers to the testimonial fund will also be presented to him at this time. It is planned to present a portrait of Dr. Cox to the association during the meeting. Contributions from members in the British Isles, service members and those outside any branch area may be forwarded direct to the honorary treasurer, Cox Testimonial Fund, British Medical Association House, Tavistock Square, London, W. C. 1. Canada and South Africa are making special arrangements through Dr. Thomas C. Routley, Toronto, and Dr. Alexander J. Orenstein, Johannesburg.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 17, 1931.

The Evils of Medical Socialism

In the medical journals the evils of medical socialism are often ignored or minimized, but the *Birmingham Medical Review* is an exception and is always outspoken on the subject. In the editorial columns of the current issue may be read: "Many panel doctors are overpaid. This does not mean that the panel service absorbs an undue sum of money. Almost certainly it does not. But the system which pays to the panel doctor a fixed sum for every patient on his list does result in the overpaying of many panel doctors. The slack man is paid at exactly the same rate as the keen man; the duffer as the competent. A young man with little experience receives more than his elderly, but still active, neighbor, who has spent years in learning his job. A pushing man in a poor crowded neighborhood may have little difficulty in filling his list, and never be really pushed professionally. The demands on his time may be heavy; but the demands on his professional capacity may be comparatively light. For in crowded town areas, panel patients are content with little more than rule of thumb methods. They are pathetically satisfied with a bottle, and, if they happen to be seriously minded, with a long word. They know little and care less about modern methods of diagnosis. Compare the panel doctor whose list includes clerks and better paid artizans. His list is always smaller and consequently his income from panel practice less. But the demands made on him professionally are far higher. His patients expect, and usually get, a comparatively high standard of service. In short, we are confronted with the paradox that the better the service the smaller the financial reward. The system makes no attempt to differentiate between service which is exceedingly valuable to the community and that which is moderately useful."

What is the remedy? Our contemporary suggests some sort of a sliding scale. For the first 500 patients on his list the physician should be paid generously; for the next 250 rather less and so on till the payment for the final few hundreds should be almost negligible. However, there is no chance of such a scheme being adopted. For one thing, it would never be acceptable to the medical profession; the men with the big lists would receive the suggestion with an outburst of indignation. Our contemporary then goes on to discuss the other forms of medical socialism, called public health services—maternity and child welfare centers, the tuberculosis service, and the mental defective service—and suggests that they are all wasteful in the expenditure of public money. But this is inherent in socialism, as the English people at least seem to be beginning to grasp in their slow but sure way.

Financing Hospitals by Sweepstakes

It has been stated in a previous letter (THE JOURNAL, June 20, p. 2134) that the Irish have discovered a new way of financing their hospitals—by sweepstakes on horse races run in England, from which country most of the money is drawn. The success of the scheme led to discussions in England on its adoption, but by a majority hospital managers decided against it, partly on moral grounds and partly because it might lead to withdrawal of voluntary subscriptions. This has actually occurred in Ireland. The success of the scheme was so great that hospitals which had no liking for it were drawn into it, not merely because they saw other hospitals obtaining larger sums than were ever hoped for but also because their own subscriptions, as well as those of the hospitals participating in the scheme, were disappearing. It is feared that voluntary subscriptions will become obsolete. But when hospital sweep-

stakes have lost the attraction of novelty or fail from some other cause, which seems more than probable, the hospitals will be left without adequate support. As they are an essential of civilization, they will have to be taken over by the state.

Better Education in Preventive Medicine Required

In an address at the opening of the winter session of Charing Cross Medical School, Sir George Newman, principal medical officer of the ministry of health, said that the teaching of medicine and its practice were concerned unduly with end-results. They learned medicine from the final entities of the hospital beds. But disease was a process and to alter end-results they must apply their knowledge at an earlier stage. They must give more attention to preventive medicine. Consider what was happening in England. Such diseases as cholera, plague and typhus had been conquered, though once terrible pestilences. We had an extraordinary control over smallpox and other diseases. Infant mortality had fallen from 150 to 60 per thousand births in a single generation. These amazing victories were not the results of hospital treatment but of preventive medicine. We suggested four ways of encouraging its study: The outlines of hygiene and preventive medicine could be placed before the student in his fourth or fifth year in a series of lectures. In Great Britain this was more fully done in the provincial than in the London schools. The second method was clinics for instruction and demonstration in preventive work. The third, and much the best, was to introduce into the main subjects of the curriculum the preventive principle. Fourthly, there should be an examination in the subject before qualification. Many newly qualified physicians did not appreciate the preventive trend that was now characteristic of enlightened medicine. The real outpost of preventive medicine was the private physician, and the public would soon demand preventive advice from him. The national insurance act, under which 15,000 physicians worked, was passed for the prevention as well as the cure of disease. Was the public getting an effective service? Vast sums were being paid to give it. If the public was not, it was because the physician had not been trained to provide it.

Metallic Foreign Body Removed from the Lung by Magnet

At the Nottingham General Hospital a foreign body was removed from the lung by an unusual method. A boy of 6 swallowed a ball bearing, which passed into the lung and set up pneumonia. He was too weak for administration of an anesthetic and removal of the body by tracheotomy. Mr. H. Bell Tawse (laryngologist) came to the conclusion that the only safe method was by means of a powerful magnet. This was obtained from the Eye Infirmary, where it is used for removing foreign bodies from the eye. The boy's body was passed through the magnet, so that when the current was switched on he was in the middle of a powerful magnetic field. With the bronchoscope the ball was located and an iron rod, made especially for the operation, was passed down the tube. In a second the ball clicked on the magnetized bar and was removed. This seems to be the first case on record in which a foreign body has been removed from the lung by means of a magnet.

The Evils of Noise: Oxford Protests

The quietude of Oxford has been so disturbed by automobile traffic that the Society for Noise Abatement has been formed. Addressing the inaugural meeting, Sir Maurice Craig, the psychiatrist, declared that the popular view that people should be able to get used to noise as to many other things in life was a dangerous error. Scientific instruments could be damaged by vibration, and the human nervous system was quite as sensitive. The best nervous system was the most easily disturbed. Sounds which at first might be only objectionable became intolerable if continued over a long period. For instance, to many the chiming of clocks was one of the worst things of all. Prolonged noise gave rise to increased sensibility, which in turn produced irritability. Sleep became defective, powers of concentration were lessened, and ability to work suffered. But it was the disturbance of the emotions which noise caused that was so dangerous, because that brought other disturbances of mind and body.

The Master of Balliol, who presided, said that Oxford used to be a quiet restful place and for that reason some of the great things came out of it. They suffered from innumerable automobile drivers accelerating badly. They were only just beginning to realize what a difference noise made to the city of Oxford and the life of the university. Prof. A. M. Low said that one might say to be hit by a sound was not the same as being hit by a brick. But the energy radiated by sound was big in cumulative effect. It was fortunate that our ears had become atrophied by living in cities.

PARIS

(From Our Regular Correspondent)

Sept. 29, 1931.

The Colonial Medical Convention

The International Colonial Exposition, which, since last summer, has attracted up to 500,000 visitors a day, has revealed to them, among other things little known, the great energy displayed by all colonizing nations in the creation of improved conditions of health. One of the reasons that cause many Frenchmen to hesitate to seek their fortune in the colonies is the fear of the peculiar diseases that may be encountered. Many persons have seen fellow citizens who, on returning from a stay in the colonies, suffered from malaria and from dysentery. Propaganda for colonial expansion has skilfully combated in advance such objections by advertising widely the great efforts put forth by all colonizing nations to combat the local scourges and arrest their action not only on white persons but also on the natives. In all the pavilions are displayed graphs and statistics showing the progress that has been made—photographs, reproductions in miniature of vast hospital areas, dioramas with figures representing physicians taking care of the natives and giving vaccinations of all kinds. Everywhere in the exposition marvelous objective lessons are given, which make a deep impression on the visitors. The documents and displays presented by the United States to illustrate the nature of the health work in the Philippines and in the Panama Canal Zone have attracted great attention; likewise the similar displays furnished by the Netherlands. In addition, an immense Congress on Tropical Diseases and Colonial Hygiene was held, lasting over a week, which the government exerted itself to make a great success. The congress was organized by Marshal Lyautey, under the name of the Journées médicales coloniales, and was attended by a considerable number of colonial physicians and French and foreign scientists interested in the study of tropical diseases. England alone sent eighteen official delegates. The United States was represented by Major General Merritt W. Ireland, surgeon general of the army medical department, and the Philippines by Prof. José Albert of Manila. By reason of the large number and the variety of the communications, the scientific assembly was distributed over several sections that met simultaneously in different places; otherwise the congress might have continued for two months. There was collected in a short time an abundant array of papers on yellow fever, malaria, trypanosomiasis, leprosy, syphilis, diseases common to man and to animals, immigration and public hygiene, the supplying of pure drinking water, the pathology and modes of combating intestinal parasites, pharmacology and tropical drugs,

sanitary and demographic protection of the natives, native children, medical aid in the colonies, medical personnel, surgery in the colonies, diseases peculiar to the colonies, mineral spring resorts, and climatic conditions. An important special section was devoted to the rôle of sanitary aviation in the colonies.

It is impossible even to enumerate all the communications presented. The part played by the various species of Stegomyia in the transmission of yellow fever and of dengue was well presented by Mr. Le Gac. He emphasized the danger to countries hitherto exempt from yellow fever by the existence in them of species of Stegomyia capable of serving as a reservoir for the virus of the disease. Almost any day the virus may be accidentally carried to any country by the new means of communication, particularly airplanes. Mr. Pettit spoke on vaccination and serotherapy in yellow fever. Mr. Roubaud gave a comprehensive account of Anopheles, the transmitting agent of malaria. Mr. Robin of Saigon, Cochin China, gave the story of the antimalaria crusade in Indo-China. Mr. Carlos Mongis of Lima recounted the results of his researches on tropical anemias. Mr. Jamot gave a comprehensive account of the crusade against trypanosomiasis in Cameroons. Mr. Stevenel described the prophylaxis and treatment of leprosy in the colonies. He thinks that leprosy is not contagious but that it is transmitted by the repeated bites of a dipterous insect found everywhere. He considers also that the real active principle of chaulmoogra oil is to be sought rather in the hard integument of the seed than in the almond. Prof. Warrington Yorke of Liverpool presented documentary evidence on the same subject. The treatment of leprosy in modern hospitals does not give as good results as the strict internment of those afflicted, practiced in the middle ages. Mr. Vaudremar outlined the results of his research on the cultivation of Hansen's bacillus during the past three years. Mr. Lacapère described the types of syphilis that appear in the natives. They are more mutilating than those appearing in Europeans but are less grave, since the viscera are seldom attacked and the disease often heals spontaneously. But this syphilis transmitted to Europeans reassumes the same characters that it habitually presents in them, which shows that the terrain alone causes the differences and not a different virus. Mr. Le Toullec discussed at length the relations between syphilis and yaws, the spirochetes of which are so similar. Mr. Krick gave the results of his research on tuberculosis in animals in Madagascar. Mr. Daubney and G. M. Findley described a new acute disease due to an ultramicroscopic virus, which is prevalent in Kenya. It is called Rift Valley fever; it lasts four days and produces an intense leukopenia with necrosing hepatitis, and is in some respects analogous to yellow fever. Mr. Stevenel considered the modes of destruction of intestinal parasites among the natives of France. He regards carbon tetrachloride as the preferred remedy. Several communications were presented on the cultivation of medicinal plants in the colonies, particularly cinchona, chaulmoogra and strophanthus, and on the value of research on indigenous drugs. Mr. Lasnet described in detail the many measures adopted for the protection of natives in the colonies; the creation of Pasteur institutes, hospitals, dispensaries; the education of a large native medical personnel, and the study of alimentary regimens to be recommended. Mr. Harvey S. Thatcher of Arkansas reported the results of his experimental studies on the relations that may exist between pellagra and avitaminosis. Mr. José Albert of Manila described in detail the manifestations of cardiac beriberi in nurslings in the Philippines, and Mr. Gautron explained the characteristics of goundou, a disease attended with bony exostoses at the sides of the nose, observed in the equatorial regions, the nature of which is the subject of controversy, some observers connecting it with yaws, others with syphilis, and still others with the presence of larvae of dipterous insects in the nasal fossae. Mr. Cuenod of Tunis presented a comprehensive paper on trachoma in Africa, and Mr. Fleury on the same disease in Indo-China. The thermal springs found in the French colonies were reviewed in numerous communications; also the value of various French springs for the treatment of tropical diseases brought to the capital by colonists and soldiers. There were eighteen resolutions discussed and adopted in plenary session at the close of the congress. The conventionists were entertained at many receptions. One that was particularly appreciated was given in her magnificent château de Courance, near Paris, by the marchioness de Ganay, who is of American extraction.

BERLIN

(From Our Regular Correspondent)

Sept. 21, 1931.

Progress of Orthopedics

The twenty-sixth convention of the Deutsche orthopädische Gesellschaft, held in Berlin, September 14-16, was prolific in new ideas. The first day was devoted to the topic "The Theory of Hereditary Transmission in Relation to Orthopedics." Freiherr von Verschuer, director, department for the study of hereditary transmission, in the Kaiser-Wilhelm-Institut für Anthropologie in Dahlem, gave a survey of the new research in this field. Up to a few years ago, the conception was encountered in medicine that the irrefutable proof of the hereditary transmission lay in the recurrence of a parent's disease in the children. The rediscovery of the hereditary "laws" set up by Gregor Mendel has brought about a change in this conception. It is now known that a disease may be termed hereditary only when it has its essential causes in pathologic hereditary predispositions. In orthopedics, the investigations of Böhm of Berlin have shown that disorders such as pes pronatus, genu valgum, genu varum and congenital dislocation of the hip are to be regarded as types of arrested development—as a standstill in an early developmental stage of the child. Verschuer showed further that influences of the environment affect the course of the development conditioned in part by hereditary predisposition. His research on unioval twins with identically the same hereditary character has blazed new trails. Thereby science has learned to distinguish between envirozment-labile and environment-stabile qualities. This research on twins is especially important for the further investigation of the problem of hereditary transmission of orthopedic disorders, as Verschuer showed by citing the examples of polydactylism and congenital dislocation of the hip.

Professor Valentin of Hanover emphasized that orthopedics is in a position to advance research on the constitutional theory and on the theory of hereditary transmission in man, as it has to do with diseases with objective symptoms, the appearance of which in the family is easily demonstrable. The influences of the environment may become effective before birth, so that one twin, as a result of defective blood conveyance, suffers from arrested development or dies. Valentin showed furthermore that persons with constitutional anomalies, in spite of the fact that they belong to different races, often present a remarkable resemblance to one another, citing the example of congenital dwarfs. Also constitutional diseases appearing in later life (such as polyarthritis) may lead to such resemblances. It must be admitted that research on constitution has not worked out any exact methods as yet.

SPASTIC PARALYSIS

The second day brought a discussion of spastic paralysis. Professor Hoffmann, physiologist of Freiburg, delivered the introductory address on muscle tonus. In pathologic spasm there is an absence of normal muscle tonus. In rigidity of the joints there is not a lessened but an increased muscular action. After these rather theoretical discussions, the paper of Dr. Stoffel of Mannheim took up the treatment of spastic paralysis. Operative treatment of this disease is usually difficult and

requires great experience. He proposed a method that consists in the division of nerves of the lower leg, with which good results are secured, as was confirmed by Professor Kreuz of the Orthopädische Universitätsklinik in Berlin. Learning to walk afterward is often difficult. Carefully adjusted after-treatment is important—which lessens the lameness and weakness of the muscles by means of suitable exercise, massage, baths and special training, and brings about a better interplay of the muscles.

FLATFOOT

The third day was characterized by a comprehensive discussion on the operative treatment for flatfoot. On the basis of a questionnaire addressed to members of the society, Dr. Schrader, chief physician of the Heidelberg Orthopedic Clinic, discussed the indications and the technic of the many different types of operation. It was formerly held that flatfoot consisted in the lowering of the arches of the foot, due to weight bearing. It has been discovered that the cause lies in an inward turning of the heel, produced by an inward deflection of the lower leg. All operations that aim to lift the arches of the foot are doomed to failure; hence the reluctance of specialists to perform an operation in childhood. If, however, the early forms are treated surgically, after nonsurgical methods have failed, one prevents the more severe types of advancing years, which are difficult to improve even by surgical means. Many speakers discussed the various operative methods and gave widely divergent opinions in regard to their respective merits. The orthopedists also are showing a tendency toward more complete specialization. The chairman, Professor Wollenberg of Berlin, discussed in his opening address the relationship of orthopedics to the parent stock: surgery. The goal of the society, recognition of the independence of orthopedics as a specialty, has been attained only in part. Orthopedics, as Wollenberg emphasized, is fully conscious of the fact that it owes much to surgery; but as time went on, it was compelled to go its own way. It expresses gratitude to surgery but will not consent to occupy a subordinate position. Wollenberg then addressed an urgent appeal to the central government not to allow the special aid given to cripples to lag. He admitted, however, that certain retrenchments, in view of the economic crisis, were in order. But the retrenchments must not be so drastic as to jeopardize the success of the Prussian movement in aid of cripples after its ten years of existence. There is scarcely any form of social legislation that has accomplished so much as the Prussian movement in aid of cripples, which was launched in 1920. All were ready to admit the worthiness of the task and the great progress that has been made; but in view of the present crisis it appears doubtful whether this branch of public aid can be preserved.

BUENOS AIRES

(From Our Regular Correspondent)

Sept. 7, 1931.

Congress of Obstetrics and Gynecology

The first Argentine Congress of Obstetrics and Gynecology was held at Buenos Aires, August 9-14. Among the official topics discussed were pain during childbirth, biology of the vagina, cesarean section and partial symphysiotomy. There were sections for operative work, which was carried on in several maternity hospitals of Buenos Aires. Dr. Chueco exhibited a technic for vaginal cesarean section.

Undulant Fever

Foci of undulant fever, both in persons and in goats, were discovered in the provinces of Mendoza, San Juan, Córdoba, Catamarca and Buenos Aires. The government appointed a committee comprising Drs. A. Sordelli, president, E. A. Molinelli, secretary, and Drs. F. Destefano, J. Miravent, J. M. de la Barrera, S. S. Quiroga and A. Andrieu, members of the board of activities, to study and control the disease. Dr. Sordelli came down with undulant fever while performing laboratory studies related to the control of the disease.

Society Against Hydatidosis

Following the proposal of Drs. J. Arce and O. Ivanisevich, the Sociedad Argentina de Profilaxis y Patología de la Hidatidosis was recently organized. The members of the society will make a more exact nosographic chart of the disease, compile statistics of its frequency from 1921 to 1930, and promote scientific investigations related with its problems and control. The headquarters of the association will be the Instituto de Clínica Quirúrgica of Buenos Aires, of which Dr. Arce is the director.

Teachers Appointed

The board of directors of the School of Medicine of the University of Buenos Aires recently presented to the government of Argentina several ternas (a list submitted to the government containing the names of three men, of whom one is selected for governmental preferment), for the vacant chairs left by the voluntary resignation of Drs. Carbonell, Speroni, Zárate, Velarde, Viñas, Borda and Sabatine, who had reached the age limit. Drs. A. Zwanck, T. Padilla, J. Beruti, J. Gabastou, J. M. Jorge, A. Ameghino and R. Rebagliati were appointed to fill these positions, which correspond to the chairs of hygiene, semeiology, obstetrics, psychiatry, and inorganic chemistry. Dr. J. Belbey was appointed substitute professor of legal medicine.

University Prizes Awarded

The prizes of the School of Medicine of the University of Buenos Aires were awarded as follows: Drs. O. Orías, A. Salaber and J. Molinari obtained the 1930 prize for the best doctoral thesis presented before the faculty during the year. The prize for the best medical contribution published during 1930 was awarded to Drs. T. Padilla and A. Cossio for their work on pathology of occlusion of coronary arteries. Dr. J. Sená was awarded the Lagleyze prize of ophthalmology for his paper on foreign bodies in the eye. The A. Centeno prize (in pediatrics) was awarded to Dr. G. A. Schiavone for his paper on tuberculosis in nurslings. A prize awarded by the Academy of Medicine of Paris has been given to Dr. P. Belou in recognition of his important work "Atlas de Anatomía del Oído."

Dr. Cantón Is Dead

Dr. E. Cantón, honorary president of the Academia Nacional de Medicina of Buenos Aires, died, June 21, aged 70. Dr. Cantón formerly was dean of the School of Medicine of the University of Buenos Aires. From 1892 to 1900, he was a teacher of parasitology and from 1901 to 1917 a teacher in the obstetric clinic. He is the author of "Historia de la Medicina en el Río de la Plata." He also published works on medical legislation. He framed several laws concerning matters of public health. He was a deputy and president of the house of representatives in Buenos Aires.

Foreign Lectures

Drs. A. Kira Kawata of Osaka, Japan, Gregoire of Paris, A. Donatti of Turin, Italy, E. García del Real of Madrid, Spain, and A. Castiglioni of Parma, Italy, are at present in Argentina giving lectures. Dr. Kira Kawata gave a series of lectures in Spanish, on neurology. Drs. Gregoire and Donatti gave lectures on clinical surgery and Drs. García del Real and Castiglioni gave a course of twenty and ten lectures, respectively, on the history of medicine.

Restriction on Foreign Physicians

Foreign physicians are not allowed according to the laws of Argentina to practice unless either they make valid their

diplomas by taking an examination (the fees of which are 4,000 pesos, or $1,600) or repeat their studies in any of the universities of Argentina. This policy was adopted because many foreign physicians practiced in clinics and hospitals as assistant physicians to Argentine physicians who acted as directors of the hospitals. In this manner both diagnosis and treatment of patients were made by persons not entitled by the law to practice. The president of the national department of hygiene states that foreign persons in all branches of medicine (physicians, dentists, pharmacists, midwives or obstetricians) should have a national diploma from one of the universities of Argentina to be allowed to practice.

BELGIUM

(From Our Regular Correspondent)

Oct. 2, 1931.

International Congress of Open-Air Schools

The second International Congress of Open-Air Schools was opened by the presidential addresses of Dr. René Sand and General Director De Paeuw, and by the official greetings of Dr. Mola, president of the International Committee (Montevideo), to the representatives of Czechoslovakia, England, France, Germany, Italy, Mexico, Netherlands, New Zealand, Poland, Peru, Spain and Scotland.

The scientific papers were presented before two sections. From the medical point of view, the discussions dealt with the collaboration of physicians and teachers in the open-air schools; the bases of physical education; respiratory technic, and the selection of children. The scientific assembly was attended by Drs. Armand Delille of Paris, Mola of Montevideo, Selter of Bonn, Madel of Paris, Delattre, Galet and Imianitoff of Brussels, Ledent of Liége, Jeudon of Paris, Monnoi of Milan, and others. Excursions to Brussels, Antwerp and the Belgian coast afforded the visitors an opportunity of seeing the large number of open-air schools that Belgium possesses.

The following resolutions were adopted:

1. Any move to apply the principles of open-air schools should be encouraged by the public authorities.

2. The government and school authorities are requested to call the attention of the teaching personnel to the necessity of applying the principles of the well ventilated classroom.

Furthermore, the school authorities are requested to (*a*) lighten the curriculums and to organize the school day in such a manner that the pupils may benefit to a wide extent from games and from walks in the open air; (*b*) provide in all the schools the greatest possible application of lessons and exercises in the open air; (*c*) provide in close connection with urban schools a garden and a playground as large as possible, and (*d*) establish in the congested districts or near to them large playgrounds for children, under competent supervision.

Tuberculosis Among School Children

In the *Revue belge de la tuberculose*, Olbrechts publishes a comprehensive article on "Tuberculosis Among School Children." He takes essentially the attitude of the school physician who is eager to discover among the children under his surveillance those who are menaced with the evolution of tuberculosis and those who already present tuberculous lesions. The tuberculin skin test should be applied to all children suspected of being tuberculous. It would be well if the test could be applied periodically. It would thus be possible to separate the children already contaminated by the Koch bacillus from those still exempt from infection.

In Belgium, the percentage of children presenting a positive tuberculin skin test is shown in table 1.

The primary tuberculous infection, as evidenced by the positive skin reaction to tuberculin, most commonly provokes no characteristic symptom that would attract the early attention of the physician. The radiologic examination is not to be applied systematically to all children reacting positively to tuberculin; for it does not reveal more than simple radioscopy, which is easy to apply, rapid and not burdensome. If the specific methods for the detection of tuberculous infection fail, the physician will endeavor to detect the presence of the disease by means of general clinical symptoms. In this connection, it may be noted that cervical adenopathy is found with the same frequency in children who react negatively as it is in children who react positively to the tuberculin skin test, as will be seen in table 2.

Nor as regards height, weight, corpulence or chest development, is there any constant and frank difference in favor of one or the other group of children.

It may be considered as to whether the humoral tests afford a more accurate means of detecting the presence of tuberculosis. The antibodies brought to light by the fixation of complement

TABLE 1.—*Percentage of Children Presenting a Positive Tuberculin Skin Test*

Age of Child	J. F. Heymans	Meunier	Duthoit	Olbrechts
5 years	50	31.7	40	53.0
6 years	45	41.0	48	42.5
7 years	38	47.5	75	46.5
8 years	60	55.5	85	57.0
9 years	61	55.0	80	57.5
10 years	75	54.0	83	61.5
11 years	71	68.0	81	52.0
12 years	71	60.0	96	67.0
13 years	70	76.5	87	55.0
14 years	72	81.0	..	69.5

are not in direct relation with the state of immunity or of resistance to infection. The erythrocyte sedimentation test offers no specificity; but it does supply evidence as to the state of suffering of the organism without reference to the origin of any disorder; this test would, however, be less trustworthy in the child than in the adult. The Vernes seroflocculation test may give in some cases an abnormally high photometric degree in nontuberculous disorders.

Olbrechts gives for Belgium the following statistics: number of children aged 5 to 15, 1,335,685; deaths in year from pulmonary tuberculosis, 347; mortality per thousand, 0.26; morbidity per thousand from pulmonary tuberculosis, 1.30; general mortality, 3.238; deaths from pulmonary tuberculosis out of 100 deaths from all causes, 10.7.

TABLE 2.—*Skin Test in Children with Adenopathy*

Age of Child	Tuberculin Skin Test: Negative	Tuberculin Skin Test: Positive
5 years	82	63
6 years	72	70
7 years	76	70
8 years	70	57
9 years	54	63
10 years	72	66
11 years	66	60
12 years	52	80
13 years	52	69

The diagnosis of tuberculosis in the school child is associated, to a certain extent, with the inquiry in the family. The latter may supply an element of precision by showing the existence of a bacillary contact or it may lead to the application of prophylactic measures: isolation of the patients, or sending of the children to resorts for recuperative treatment.

The various therapeutic institutions for children have their clientele well defined. The open-air colonies accept weakly children. The preventoriums take charge of the latent cases.

To the sanatorium should be sent only those who are frankly infected, excluding the inactive cases.

Close collaboration of medical inspection of schools and of the antituberculosis dispensary is needed in order to secure the best results from the many efforts made in carrying on the crusade against tuberculosis in children.

Medical inspection of schools will likewise be of great aid in connection with the trials of antituberculosis vaccination that are being made. The distribution of the disease will determine the rôle that school medical inspection will play.

In Memory of Albert Brachet

A committee has been formed that counts among its honorary members the most eminent anatomists and embryologists of all lands, while the executive committee is composed of Belgian scientists, presided over by Prof. Léon Crismer. The committee was appointed to honor the memory of Albert Brachet, director of the Institute of Anatomy and Embryology, member of the Academy of Medicine and the Academy of Sciences, and corresponding member of the Institut de France, the Academy of the Lynxes, the Royal Society, and others. The pupil and successor of Swaen and Van Beneden, he was one of the most prominent and most capable embryologists, and one of the precursors of experimentation in morphologic studies. The committee is planning to establish an Albert Brachet prize with which to reward the best research work done during a certain period or a series of researches that have marked a distinct advance in the domain of embryology and, particularly, causal embryology. The prize will be open to scientists of all countries. Albert Brachet always held that science ought to bring the nations of the earth more closely together; that it should know no boundaries, and that it should be the great school of humanity and righteousness. The prize will be awarded by the Academy of Sciences of Belgium.

Marriages

JOSEPH NORMAN WALSH, Moncks Corner, S. C., to Miss Cleremonde Gaillard Sinkler of Eutawville, August 25.

CARL MATHEWS DUMBAULD, Lieut., U. S. Navy, to Miss Phyliss Elizabeth Miller at Hagerstown, Md., June 16.

ALEXANDER GRINSTEIN, Seattle, to Miss Selma De Lue of Montgomery, Ala., in San Francisco, September 16.

VAN DOREN RATHGEBER, Fort Worth, Texas, to Miss Bernadine Walters of Madison, Wis., September 8.

ERNEST FOSTER GORDON, New Haven, Conn., to Miss Florence Oppenheim of Yonkers, N. Y., August 16.

JOSEPH H. BROWN to Miss Dorothy Duringer, both of Fort Worth, Texas, in San Diego, Calif., October 7.

HARRIS HARTWELL BASS, JR., Henderson, N. C., to Miss Elizabeth Gow of Butte, Mont., September 2.

HERMAN A. GROSS, Lieut. (j. g.), U. S. Navy, to Miss Mildred Schmick of St. Louis, September 9.

WILLIAM H. ROHDENBURG to Miss Mildred Klein, both of Norwood, Ohio, at Wintersville, June 13.

PAUL E. KELLOGG, Ashland, Ohio, to Miss Anne Rosenkeimer of Beaver Falls, Pa., August 22.

FRANCIS H. RILEY, Jamestown, Ind., to Miss Ruth Hill of Carthage, in Peoria, Ill., September 9.

WILLIAM SHEPHERD HESTER to Miss Cecilia Reid Scott, both of Reidsville, N. C., October 10.

ALBERT FRANCIS SAUNDERS, Valdosta, Ga., to Miss Sally Lou Rowland, August 20.

GEORGE S. MOORE, Muncie, Ind., to Miss Virginia Cameron of Marion, September 9.

WILSON H. WYCKOFF to Miss Mabel Robinson, both of Bedford, Ohio, July 6.

RAYMOND E. SETH, Seattle, to Miss Helen Wiesner of Omaha, August 10.

NICOLA GIGANTE to Miss Frances M. Jordan, both of Detroit, August 22.

Deaths

Lewis Hugh McKinnie ⊕ Colorado Springs, Colo., since 1929 a member of the Council on Scientific Assembly of the American Medical Association, died at his home in Colorado Springs, November 2. Dr. McKinnie was born in Viola, Ill., in 1874, the son of Dr. E. L. and Mary Moore McKinnie. After education in Monmouth College he obtained his medical degree from Jefferson Medical College in 1902. He had been a practitioner in Colorado since 1905. During the World War he entered service in 1917 as captain, became commander of base hospital 112 in France and was discharged with the rank of lieutenant colonel in 1919. Dr. McKinnie was active in his service to organized medicine, representing the state of Colorado in the House of Delegates from 1914 to 1917, 1922 to 1924, 1926, 1927 and 1929. His recent contributions to THE JOURNAL on various sociological and economic aspects of medical practice had attracted much attention.

Erastus Eugene Holt, Sr., Portland, Maine; Medical School of Maine, Portland, 1874; Medical Department of Columbia College, New York, 1875; an affiliate Fellow of the American Medical Association, and honorary member of the Maine Medical Association; member of the American Otological Society and the American College of Surgeons; aged 82; founder and superintendent of the Maine Eye and Ear Infirmary, where he died, October 2, of lobar pneumonia and arteriosclerosis.

Wilbur T. Sarles ⊕ Sparta, Wis., a member of the House of Delegates of the American Medical Association, 1902-1904 and 1906-1908, also a faithful worker on the Board of Trustees from 1908 to 1923, died at his home in Sparta, October 31, of uremia. Dr. Sarles was born in Necedah, Wis., Nov. 14, 1856. He was graduated by Rush Medical College in 1882. Since 1903 he had been continuously a resident of Wisconsin. He was well known as a surgeon and for his leadership in medical affairs.

Luba Robin Goldsmith ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1902; member of the board of health of Pittsburgh in 1903; assistant to chair of physiology, dental department, University of Pittsburgh in 1909 and medical adviser to women students, University of Pittsburgh in 1914; aged 52; died, October 7, at the Mayo Clinic, Rochester, Minn., of pneumonia and peritonitis, following a recent operation.

John Madison Taylor ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1878; member of the American Climatological and Clinical Association; formerly professor of physical therapeutics and dietetics, Temple University School of Medicine; co-author of "Diseases of Children"; aged 76; died, October 3, in the Orthopedic Hospital, of myocarditis and chronic nephritis.

David McAllister Aikman, Wheeling, W. Va.; University of Maryland School of Medicine, Baltimore, 1916; member of the West Virginia State Medical Association and the American College of Surgeons; served during the World War; on the staff of the Ohio Valley General Hospital; aged 37; died, October 4, in a hospital at Washington, Pa., of pneumonia.

George Watson Roberts ⊕ New York; New York Homeopathic Medical College and Hospital, 1889; formerly professor of gynecology at his alma mater; member of the American College of Surgeons; senior consulting surgeon to the Fifth Avenue Hospital; aged 65; died, October 14, of heart disease.

David Jones Matthews, Zanesville, Ohio; Medical College of Ohio, Cincinnati, 1896; member of the Ohio State Medical Association; served during the World War; at one time county coroner; formerly on the staff of the Bethesda Hospital; aged 56; died, October 13, of pulmonary tuberculosis.

Truman R. Stiles, St. Johnsbury, Vt.; University of Vermont College of Medicine, Burlington, 1869; member of the Vermont State Medical Society; formerly member of the state legislature and state board of health; also justice of the peace; aged 84; died, October 3.

Silas Edgar Brown, St. Paul; Medical Department of the University of the City of New York, 1883; formerly coroner in St. Lawrence County, N. Y., and past president of St. Lawrence County Medical Society; aged 75; died, September 12, of coronary thrombosis.

Soren P. Rees ⊕ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1897; formerly assistant professor of medicine at his alma mater; on the staff of the Swedish Hospital; aged 61; died, October 2, of carcinoma of the stomach.

Walter Wilson Jamieson ✠ Syracuse, N. Y.; Medical Department of the University of the City of New York, 1881; aged 74; on the staff of the Crouse-Irving Hospital, where he died, September 17, of carcinoma of the rectum and intestinal obstruction.

John Octavius Hatcher ✠ Deming, N. M.; Vanderbilt University School of Medicine, Nashville, Tenn., 1901; past president of the Lawrence County (Ark.) Medical Society; health officer of Luna County; aged 53; died, July 26, of cerebral hemorrhage.

David Hampton Lewis, Albuquerque, N. M.; Western Reserve University Medical Department, Cleveland, 1888; past president of the Dona Ana County Medical Society; aged 70; died, September 29, of acute dilatation of the heart and diabetes mellitus.

Byron Thomas Quigley, St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1891; member of the Missouri State Medical Association; served during the World War; aged 62; died, September 30, of cirrhosis of the liver and chronic myocarditis.

William S. M. Field, Philadelphia; Jefferson Medical College of Philadelphia, 1886; formerly member of the state legislature; for many years connected with the board of health; aged 73; died, October 7, of carcinoma of the stomach and uremia.

Herbert Rockwood Coleman ✠ Napa, Calif.; University of Kansas School of Medicine, 1917; served during the World War; on the staff of the Victory Hospital; aged 41; died, September 7, in San Francisco, of adenoma of the pituitary gland.

Harry Wilson Knapp, Flint, Mich.; Detroit College of Medicine, 1903; member of the Michigan State Medical Society; served during the World War; formerly on the staff of St. Joseph's Hospital; aged 59; died, October 8, of heart disease.

Patrick Joseph Finnigan, Cambridge, Mass.; Harvard University Medical School, Boston, 1883; member of the Massachusetts Medical Society; formerly member of the board of health and school committee; aged 73; died, October 7.

Lincoln J. Baldwin, Westfield, Ind.; University of Indianapolis Medical Department, 1898; past president of the Hamilton County Medical Society; for many years bank president; aged 71; died, October 9, of carcinoma of the stomach.

Arthur Leon Wright, Catonsville, Md.; University of Maryland School of Medicine, Baltimore, 1908; aged 47; on the staff of the Spring Grove State Hospital, where he died, October 6, following an operation for appendicitis.

William Cordell Harkins, Akron, Ohio; Michigan College of Medicine and Surgery, Detroit, 1891; member of the Ohio State Medical Association; aged 74; died, October 5, in the Aultman Hospital, Canton, of gastro-enteritis.

John Alexander Kinloch, Chicago; L.R.C.P., Edinburgh, L.R.C.S., Edinburgh, and L.R.F.P.S., Glasgow, 1886; McGill University Faculty of Medicine, Montreal, Que., Canada, 1886; aged 70; died, in October, at Montreal.

Royal Alfred Whitney, Liverpool, N. Y.; Long Island College Hospital, Brooklyn, 1884; for many years health officer of Liverpool; aged 76; died, September 17, of bronchopneumonia and cerebral arteriosclerosis.

John Wesley Bozarth, Los Angeles; Marion-Sims College of Medicine, St. Louis, 1898; past president of the Dawson County (Neb.) Medical Society; aged 67; died, October 12, in a local hospital, of angina pectoris.

Arthur Van Der Velpen ✠ Detroit; University of Michigan Medical School, Ann Arbor, 1885; formerly a pharmacist; aged 68; died, October 5, in the Harper Hospital, of arteriosclerosis, nephritis and uremia.

Joseph J. Lumpp, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1901; aged 52; died, September 3, in the Cook County Hospital, of pulmonary tuberculosis and chronic myocarditis.

Charles A. Faber, Toledo, Ohio; University of Michigan Medical School, Ann Arbor, 1890; served during the World War; formerly county coroner; aged 67; died suddenly, October 11, of heart disease.

William Herbert Hemingway, New York; Medical Department of the University of the City of New York, 1886; aged 64; died, September 26, in the Presbyterian Hospital, of retroperitoneal sarcoma.

Herman T. Hessig, Paducah, Ky.; Long Island College Hospital, Brooklyn, 1891; aged 68; died, September 25, in the Municipal Hospital, Tampa, Fla., of chronic nephritis and chronic myocarditis.

Charles Frederick Tucker, Syracuse, N. Y.; University of Buffalo School of Medicine, 1894; aged 67; died, September 21, in the People's Hospital, of chronic parenchymatous nephritis.

George Robert McManus, Stoughton, Wis.; Howard University School of Medicine, Washington, D. C., 1891; aged 69; died, October 2, in a hospital at Mendota, of myocarditis and nephritis.

Thomas M. Triplett, Milford, Neb.; Homeopathic Medical College of Missouri, St. Louis, 1878; aged 89; died, September 30, in the Soldiers' and Sailors' Home Hospital, of pericarditis.

Isaac Joseph Whitney, Unadilla, N. Y.; Eclectic Medical College of the City of New York, 1883; formerly president of the board of health of Unadilla; aged 83; died, October 3, of senility.

Charles Herman De Witt, Glenwood, Iowa; College of Physicians and Surgeons, Chicago, 1883; member of the Iowa State Medical Society; aged 72; died, October 13, of embolism.

John Alden Sherard, Detroit; Meharry Medical College, Nashville, Tenn., 1929; aged 31; on the staff of the Good Samaritan Hospital, where he died, June 14, of lobar pneumonia.

Salmon Blake Axtell, San Diego, Calif.; University of Wooster Medical Department, Cleveland, 1880; aged 76; died, September 29, of cerebral hemorrhage and bulbar paralysis.

John H. Perrin, Marceline, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; formerly a member of the state legislature; aged 83; died, September 19, of hemiplegia.

Domit S. Sphire ✠ Hardinsburg, Ky.; Kentucky University Medical Department, Louisville, 1903; county health officer; aged 56; died, October 4, of carcinoma of the rectum.

James Cloud Phillips, Lithonia, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; aged 41; died, September 25, in Savannah, of cerebral hemorrhage.

Richard Albert Dreyer ✠ Wheeler, Wis.; Marquette University School of Medicine, Milwaukee, 1913; aged 44; died, September 24, of a self-inflicted bullet wound.

Harry Carson Olmsted ✠ Seattle; Rush Medical College, Chicago, 1922; aged 34; died, September 16, in St. Vincent's Hospital, Portland, Ore., of infantile paralysis.

Irwin Proctor Howard, Strawberry Point, Iowa; Hahnemann Medical College and Hospital, Chicago, 1897; aged 56; died, October 1, of carcinoma of the tongue.

Finus Eliot Grace, Hopkinsville, Ky.; University of Tennessee Medical Department, Nashville, 1879; aged 83; died, September 29, in Howell, of myocarditis.

David William Manson, Kansas City, Mo.; Kansas City Medical College, 1902; served during the World War; aged 58; died, September 24, at Westboro.

Charles Davis Gaylord, Long Beach, Calif.; Jefferson Medical College of Philadelphia, 1894; aged 61; died, September 27, of carcinoma of the liver.

George Franklin Spencer, San Diego, Calif.; Rush Medical College, Chicago, 1884; aged 71; died, September 14, of arteriosclerosis and myocarditis.

Morris Marvin Price, Salyersville, Ky.; Hospital College of Medicine, Louisville, 1907; aged 46; died, October 2, of a self-inflicted bullet wound.

Pelham L. Felder, Elloree, S. C.; Medical College of the State of South Carolina, Charleston, 1892; aged 62; died, September 16, of myocarditis.

Frank Adelbert Morse, Lynn, Mass.; Harvard University Medical School, Boston, 1887; aged 71; died, October 2, of cerebral arteriosclerosis.

Edward Vincent McGoldrick, Brooklyn; Long Island College Hospital, Brooklyn, 1902; aged 53; died, September 8, of acute nephritis.

John H. Lobdell, Flatrock, Mich.; Michigan College of Medicine, Detroit, 1881; aged 71; died, in September, of cerebral hemorrhage.

Will H. Lester ✠ Greenville, Mich.; Kansas City Medical College, 1899; formerly mayor; aged 57; died, in October, of heart disease.

Benson Hillyard Hamilton, Sault Ste. Marie, Ont., Canada; Medical Faculty of Trinity University, Toronto, 1903; died, June 12.

Simon S. McCormick, Hublersburg, Pa.; Eclectic Medical Institute, Cincinnati, 1889; aged 67; died, August 31, of uremia.

Ernest C. Partee, Stephens, Ark. (licensed, Arkansas, 1903); aged 59; died, September 19, of diabetes mellitus.

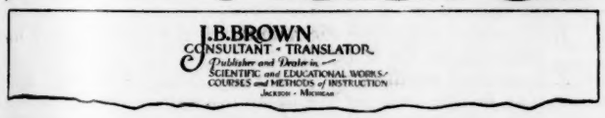
Bureau of Investigation

STAMANA (VIGARIS)

Another "Sexual Rejuvenation" Fraud

For a few years past, the Bureau of Investigation has been receiving inquiries regarding a product first known as "Stamana" and later as "Vigaris." It has been put out from Jackson, Mich., by one J. B. Brown, sometimes known as Blaine Brown. This person's method of exploiting his fraud was to purchase "sucker lists" from New York and Chicago concerns that make a business of selling and renting such lists, and then circularizing the names thus obtained. Some of the stationery used by Brown carried his name, describing him as a "Consultant-Translator, Publisher and Dealer in Scientific and Educational Works, Courses and Methods of Instruction." Other stationery carried as the main name, "Research Products, Distributors of Stamana," and in the corner of the stationery the statement, "Private Office, J. B. Brown, President."

Brown's story in his come-on literature was to the effect that nearly thirty years ago he had been rejected for life insurance and was told by the examining doctor that his vitality "was pretty well used up" and that he was in "the senile condition of a man about seventy years." Further, that three specialists all agreed in this diagnosis. The story then continued that his "fire of youth" having about died out, left him with "no ambition to do the very things men are created for." At about this time, continued the Brown story, he became interested in a drug store, which gave him access "to the private formulas of the best physicians who were all the time sending their patients to the store with prescriptions to be filled." Brown further stated that he was interested in anything that



was prescribed for men afflicted like himself, and out of the prescriptions, he selected some that brought him "back to abundant strength and vigor." All this, of course, leading up to the statement that if the person receiving a circular-letter would send Brown $2, he would send him a liberal supply of this prescription which he sold under the names "Stamana" and "Vigaris"—"in a perfectly plain, sealed package."

Jackson, Mich., from which town Brown conducted his fraud, was for many years notorious for the medical mail-order swindles that were carried on in it. During the past few years, however, the authorities of the state have been taking action against medical frauds within its borders. In the latter part of last year (1930), Brown was warned by the Michigan officials that he was operating in violation of the state law and he is said to have agreed to leave the state. Instead, however, he had his mail addressed to Angola, Ind., where he employed a person (at $50 a month) to receive the incoming mail and post outgoing mail. The employee forwarded the mail received daily to Brown at Jackson, Mich., and Brown operated the business from his residence in that town.

On August 28, of this year, Brown was called on by the postal authorities to show cause on September 18, why a fraud order should not be issued against him. This date was subsequently extended to October 2. Brown did not appear, nor did he send any one to appear for him, but he did forward a written answer to the charges to the postal authorities. The Hon. Horace J. Donnelly, Solicitor for the Post Office Department, went into the evidence in the case and found that the thing was a scheme for obtaining money through the mails by means of false and fraudulent pretenses, and recommended that a fraud order be issued against Blaine Brown at Angola, Ind., and Jackson, Mich.

It was brought out in Judge Donnelly's memorandum to the Postmaster General that Brown has, more recently, changed the name of his nostrum, Stamana, to Vigaris. The "treatment" came in the form of capsules, of which there were four kinds—red, green, gray and black. Each red capsule contained 2 grains of damiana and ⅛ grain of zinc phosphide; each green capsule contained the same; each gray capsule contained 1/20 grain of yohimbine, mixed with starch, while each black capsule contained 1/30 grain of yohimbine, mixed with charcoal. The yohimbine capsules Brown is said to have prepared at his house; the red and green capsules were prepared for him by a drug concern (unnamed) in Cleveland, Ohio.

Brown had no laboratory; he is not a physician nor a chemist and does not employ such a person. The "treatment" was a stock affair, and the victim who sent for Brown's remedy for sexual debility, whether he was over sixty or under thirty, received the same package of drugs.

Brown is reported to have sent out between five and six thousand letters a week to prospective victims. He prepared his own literature and did a business estimated at between $8,000 and $10,000 annually. In April of this year, when Brown was interviewed by a postoffice inspector, he claimed that he was making no money in the business and promised to discontinue it about June 1; he failed to keep that promise. The mails were closed to this swindle October 19, 1931.

Correspondence

PROBLEMS IN POLIOMYELITIS

To the Editor:—One cannot but be amazed at the complacent assurance with which Dr. Draper, in his article "Significant Problems in Acute Anterior Poliomyelitis" in THE JOURNAL, October 17, sums up that "a preataxic tremor stage diagnosis of poliomyelitis can and should be made."

Despite the fact that the general systemic infection period does not offer any hint whatever of a subsequent poliomyelitic, or any other, development; despite the fact that the latent period, as in a case now in my wards, may be as long as six days; notwithstanding that the "passage period" may be limited to a couple of hours, we are told that "having these facts at our disposal, one should be able to prevent paralysis."

Furthermore, while "it has been definitely shown that immune human serum can block paralysis in monkeys infected with poliomyelitis virus," there is still inadequate proof that immune serum has prevented palsy in human beings actually afflicted with the disease in question.

The fact that children who have been exposed to infantile paralysis and have, shortly thereafter, shown systemic evidences of an infection, have been given immune serum and then failed to develop paralysis is, to my mind, as much or more evidence that no poliomyelitis existed in them as that the serum aborted the disease.

When all is said and done, one can never confirm a diagnosis of acute poliomyelitis in a case in which paralysis does not develop. The mechanical irritation produced in frequent entrances into the spinal canal, as advocated by Draper, might very readily produce increase in fluid pressure and in globulin, and in cell count up to as small a number as 50 per cubic millimeter, particularly since some authors question the significance of cell counts up to several times that number.

Furthermore, as to the value of immune serum, we have the example of measles. Whether we agree or not on the value of immune serum in modifying or preventing measles when the serum is given prior to the period of invasion, few, if any, of us consider it of value after this period has begun.

At the beginning of his article, Dr. Draper states that "there are still certain key points [in acute anterior poliomyelitis] which remain unsolved." Despite my other objections, I agree very strongly with Dr. Draper in this. But I most strongly

protest such assumption of hypotheses, as axioms; and of definite inferences drawn from what are, unfortunately, still quite indefinite data.

No one, of course, can object to the administration of parental whole blood, intramuscularly, in the presence of an indefinite infection. Many pediatricians have been giving parental blood to children, for years, as a shotgun multiple immunizing measure, when such children were shortly to be exposed to insanitary conditions, such as visits to eastern Europe. What diseases, if any, were actually prevented thereby will, however, always be a matter of pure speculation.

In the clinical handling of acute anterior poliomyelitis, we have progressed no further than Flexner and Stewart's work, reported over three years ago.

ROBERT A. SCHLESS, M.D., Philadelphia.

"TREATMENT OF HEMATEMESIS BY THE RETENTION CATHETER"

To the Editor:—In the article by Dr. Horace W. Soper in THE JOURNAL, September 12, Dr. Soper suggests treating gastric hemorrhages by introducing the duodenal tube and leaving it there, first for washing the stomach, later when the tube has reached the duodenum for feeding. I would like to mention that this method has been used by me and by some of my followers since 1910. Dr. Soper introduces the tube through the nostril; I give it usually through the mouth, which represents a more natural way.

Ever since duodenal alimentation has been employed in gastric hemorrhages there has seldom been any need of blood transfusion, as the ample nutrition soon gives the organism a good chance to manufacture and replace the lost blood.

I am pleased to see that Dr. Soper had good results with the tube treatment.

MAX EINHORN, M.D., Yew York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ERYTHREMIA OR POLYCYTHEMIA VERA

To the Editor:—A white man, aged 38, weighing 230 pounds (104 Kg.), who is engaged in the ice and cold storage business, is suffering from vertigo, irritability, forgetfulness, loss of energy and impaired appetite. There is a moderate conductive deafness of the left ear, the drum is retracted and the septum is deviated to the left, high up. The tonsils were removed three years ago with clean enucleation. The heart and lungs are normal. The abdomen is fat, but there are no palpable masses. I was unable to palpate the spleen. All reflexes are normal and there is no incoordination. The pupils are round and equal, and they react to light and convergence and consensually. The eye muscles are agile. No cranial nerves are involved. The skin does not show dryness, lesions, cyanosis or edema. The hair has normal texture, and there is no alopecia, excessive sweating, or loss of weight. The fundi of the eyes show no abnormality. On examination the following observations were made: blood pressure, 120 systolic and 80 diastolic; pulse 70; temperature, 98.6; basal metabolism, —12. Examination of the blood, Aug. 25, 1931, showed red cells, 8,440,000 and white cells, 11,500; the differential count was polymorphonuclears, 61 per cent; mononuclears, 6 per cent; lymphocytes, 32 per cent; basophils, 1 per cent; hemoglobin (Dare), 70 per cent. August 31, the red blood cells numbered 6,520,000; no white blood cell count was made; the differential count was: polymorphonuclears, 72 per cent; mononuclears, 1 per cent; lymphocytes, 19 per cent; transitionals, 9 per cent. September 4, blood examination showed red blood cells, 6,840,000; hemoglobin (Dare), 85 per cent; white blood cells, 10,700. The differential count was: polymorphonuclears, 75 per cent; mononuclears, 4 per cent; lymphocytes, 20 per cent; eosinophils, 1 per cent. A fellow physician furnished the following information: Feb. 10, 1930, the red blood cells numbered 5,500,000; the white blood cells, 9,000; the hemoglobin was 80 per cent, and the differential count was normal. No atypical cells were found at any counts, but some red blood cells did not stain as deeply as others. No poikilocytes, anisocytosis, normoblasts or marrow cells were found at any time. The patient has been living in the same locality all his life; he is of a neurotic type and has to take medicine on the least provocation. He has a loose sacro-iliac joint which has been treated by an orthopedist, but it causes frequent pain, for which sedatives are required. Recently he has been taking amidophen in rather large quantities. Would this be considered a polycythemia vera or an erythremia? Would the polycythemia be caused by the drug amidophen or any ingredients in this compound? Would you suggest the prognosis and the best method of handling in either case? What is the opinion of use of phenylhydrazine hydrochloride in this condition; what should be its dose and frequency? What is the accepted opinion on roentgen therapy of the long bones? What is the accepted opinion on bleeding for severe vertigo?

E. R. FERGUSON, M.D., Cleveland, Tenn.

ANSWER.—There are many features of this case that resemble those noted in erythremia or polycythemia vera. The mode of onset and the symptoms presented are quite characteristic. However, an absolute diagnosis of the primary type of polycythemia may at times be difficult to establish without prolonged careful observation. A number of the so-called classic features of this disease have been variable in cases reported. The peculiar reddish blue color of the skin, which is not present in this case, has been inconstant in other case reports. Christian has emphasized that color changes in the skin may be absent in well developed cases of erythremia. Splenic enlargement, which was also reported absent in this case, varies considerably and is independent of the clinical picture. Palpable enlargement of the spleen may be absent for some time in typical cases. In the classic case the erythroblastic hyperplasia is reflected in the peripheral blood in qualitative as well as in quantitative changes. There is usually some evidence of red cell immaturity, which may vary in changes in shape, size, staining reaction or embryonic forms. While our correspondent does not report any of these changes, unevenness in depth of staining reaction of the red cells should be looked on as suggestive evidence. Perhaps careful observation of the blood will reveal more definite changes. Reticulocyte counts will aid in evaluating the response. Moderate leukoblastic activity (neutrophilia) is also present in the typical case and is present here. Careful study of the granulocytes for signs of immaturity should be made. It is interesting to note the low basal metabolic rate in connection with meager signs of erythroblastic activity. In the typical cases of erythremia reported, the basal metabolism is increased. Minot and Buckman, however, have shown that their cases with the highest rate showed greater bone marrow activity than those with lower rates. It would be interesting to check this observation. Excluding the group of relative polycythemias due to blood concentration, there are two main pathologic states in which polycythemia is an essential feature:

1. Excessive erythroblastic activity of the bone marrow from an unknown cause (erythremia).
2. Increased erythrocyte production from anoxemia, which may be due to a variety of known causes (erythrocytosis). It is an effort on the part of the organism to compensate for deficient oxygenation.

The second question concerns the latter part of this discussion. Polycythemia due to drugs falls into the class of erythrocytosis. It occurs with the use of those drugs which cause a defect in the oxygen combining power of hemoglobin. Consequently, cyanosis is an invariable accompaniment unless a severe anemia is present. Amidophen is the coined name of Eli Lilly & Co. for a mixture of amidopyrine, acetphenetidin, caffeine and extract hyocyamus. Amidophen contains two drugs which may cause a defect in the oxygen combining power of hemoglobin; viz., caffeine and acetphenetidin. (Amidopyrine is usually well borne.) The amount of these drugs in this proprietary mixture is, however, small and it would necessitate much larger amounts to produce this result. The report of Harrop and Waterfield in THE JOURNAL, Aug. 30, 1930, on aniline derivatives may be of interest in this consideration.

Erythremia is a chronic disease with spontaneous remissions and exacerbations. Prognosis so far as life is concerned is fair, but recovery for true polycythemia is unknown. The condition is eventually fatal, usually terminating in sudden death as complications of cerebral vascular disturbances, hemorrhage and thrombosis or circulatory failure. Some patients live to die of intercurrent disease. The prognosis of erythrocytosis depends on the removal of the cause and the prognosis of that condition.

The treatment of erythremia is far from satisfactory. The measures now available produce no more than an alleviation of symptoms. Because of the natural history of the disease, chronicity with spontaneous remissions and exacerbations, it is difficult to evaluate the therapy exactly. Most forms of therapy recommended for this condition are designed to reduce the red blood cells.

Phenylhydrazine hydrochloride is an example. Giffin and Conner, in THE JOURNAL, May 4, 1929, advised a treatment routine. These authors recommend a total starting dose of

from 1.5 to 3.5 Gm., divided in three daily doses in severe cases, and for mild cases from 0.1 to 0.3 Gm. each week. The dose of the drug should be determined by the physician's judgment, but it is safer to start out with small doses at weekly intervals. Repeated blood examinations are necessary to check the results of therapy and to guard against the continued use of the drug in the presence of a low red blood cell count.

There are several treatment principles which must be followed carefully:

1. Treatment should be given only to ambulatory patients.
2. It is dangerous to administer the drug to patients above the age of 60 and to those presenting any evidence of arteriosclerosis, or hepatic, cardiac or renal disease.
3. Treatment of the far advanced case is not advised.
4. The administration of the drug should be carefully controlled by repeated blood examinations.

While the results from this form of treatment are conflicting, many cases are temporarily benefited under careful medical supervision. However, the dangers of the drug are many and it is best to reserve this therapy for those cases which cannot be aided by more conservative measures. One must decide whether the risks involved in the use of chemical poisons justify the improvement noted. Opinions differ. It would seem that as long as these methods are not curative it would be more plausible to select a conservative method of treatment when the risk is small. Radiation over the long bones with systematic exposure by radium or x-rays can produce considerable alleviation of symptoms. This form of treatment should also be carefully checked by blood examination.

Bleeding for the relief of headache and vertigo has been found effective. The result is, however, transient, because the blood is soon restored to its previous state. One must consider the possibility that repeated bleeding may intensify the polycythemia because of stimulation of the hyperplastic bone marrow. Increase in the pressure of cerebrospinal fluid is usually present, and headache and vertigo often may be relieved by lumbar puncture.

MENORRHAGIA

To the Editor:—A white woman, aged 25, the mother of two children, which were delivered normally, has had severe menorrhagia each month since the birth of the last child in January of this year. The flow is profuse, amounting to hemorrhages, and is associated with severe pain in the right lower quadrant of the abdomen. Between the menstrual periods she is in excellent health and there is no leukorrhea, and I cannot find any evidence of gross pathologic changes on vaginal examination. A laparotomy was performed in July, at which time the appendix was removed. The right tube was thick and inflamed and was removed. There were numerous adhesions from both ovaries to the intestine. The ovaries were bound down by adhesions in the pelvis but appeared healthy. The adhesions were resected and one or two small cysts were removed. Since the operation there has been no improvement and in fact the bleeding has been worse. Please omit name and town. M.D., Pennsylvania.

ANSWER.—The menorrhagia described may be of the so-called functional type, and some disturbance in one or more of the glands of internal secretion is most likely responsible for it. A curettement should be performed, for sometimes this simple procedure brings about a temporary cure and, though rarely, even a permanent cure. Furthermore, a microscopic study of the uterine scraping might reveal an anatomic basis for the excessive menstrual periods. The most likely pathologic condition found in these cases is hyperplasia of the endometrium.

The characteristics of this disease are an increase in the number of stroma cells and an enormous distention of the glands, producing the so-called swiss cheese pattern. Regardless of the period in the menstrual cycle in which the curettement is performed, the pattern is the same. This, of course, is in contrast with that found in women who have a normal endometrium and a normal cycle.

Hyperplasia of the endometrium is most likely due to some disturbance in the pituitary; hence treatment should logically be directed toward this gland. Unfortunately, no specific way of doing this is available. Pituitary preparations when administered hypodermically frequently check the excessive bleeding but they do not cure the condition. Pituitary preparations are especially helpful when the uterine musculature is relaxed. Many ovarian preparations have been recommended. Thyroid preparations have been used in some cases. But usually little benefit is derived from these products.

In many cases repeated curettements bring about a cure. This treatment appears illogical because hyperplasia is not really a local disease; but there are undoubted cures following this procedure. If repeated curettements fail to produce an amelioration of the bleeding, mild roentgen or radium therapy should be tried because it destroys the graafian follicles. However, this treatment should be administered only by an experienced radiologist in conjunction with an expert gynecologist; if the treatment is not properly carried out in a young woman, a permanent menopause may result even though this is only a remote possibility. In the case cited, an inflammatory process in the ovaries may be responsible for the menorrhagia; and even if this is the case, roentgen treatment may help.

Another reason for a curettement is that not infrequently this operation will reveal polyps, a polypoid endometrium or submucous fibroids, all of which may be the cause of the excessive bleeding. The removal of the first two by means of the curet usually relieves the condition, and the fibroids may have to be removed surgically before the excessive bleeding will subside.

The last resort is a hysterectomy; but this is rarely necessary.

POSSIBLE DIAGNOSIS OF POLIOMYELITIS

To the Editor:—A boy, aged 6 years, somewhat underweight but appearing quite wiry, well tanned from the sun and having had cod liver oil daily since infancy all during the fall and winter months, has a past history entirely negative, except for fairly profuse bodily sweating at night. He did not feel just right for about a week and then his mother noticed one morning that his head was retracted. I saw him two days ago, twenty-four hours after the onset of the symptom. His temperature was 99.2 F. He did not complain of headache, vomiting, nuchal pain or spinal pain. In fact, except for the slight fever and the retracted head, I could not find a thing. His head was drawn backward to its limit. There was some tenderness on anterior and lateral bending of the head. The posterior muscles of the neck seemed hard and spastic. There was some tenderness over the last cervical vertebra. As he had fallen from a barn about a week before, I had him examined and the neck roentgenographed by an orthopedic specialist, who reported that the neck vertebrae appeared normal. A pediatrician examined him and said that it was not poliomyelitis or meningitis, although he did not make a puncture. The latter examiner did not know just what it was. I considered that it might be just an acute myositis in the posterior neck muscles, possibly from a draft of air blowing on his neck while he was sweating in bed. I ordered epsom salt, hot packs locally, and small doses of acetphenetidin and acetylsalicylic acid internally, together with a laxative. Today the neck seems to be a little more movable with less pain. Because of the history of sweating I had an idea that this retraction might be a form of tetany from calcium deficiency, so I am giving him lime water and cod liver oil combined with viosterol. On looking over the available literature I cannot find mention of tetany taking this form. Is the diagnosis of tetany possible here; if not, would you please tell me your diagnosis? Please omit name. M.D., New York.

ANSWER.—It is not likely that this was tetany, but since that was suspected the blood calcium should have been estimated before calcium treatment was initiated. To have tetany causing only retraction of the head without spasms of the hands and feet is very improbable. The diagnosis of poliomyelitis of meningeal type cannot be dismissed and is the most probable one if the symptoms subside entirely or if some degree of weakness in one or more of the neck muscles should persist. Just at this time cases of this type have been observed along with fairly typical cases of poliomyelitis. Acute myositis due to some infection is another possibility, but poliomyelitis is the more probable diagnosis.

ADENOMA OF THYROID AFTER PREGNANCY

To the Editor:—Kindly advise me in the following case: A small swelling appeared on the right side of the neck, anteriorly, in a woman who was about eight months pregnant. She gave birth to her second child in a normal manner, about five months ago. The swelling has increased slightly in size, but there have been no other signs or symptoms. The mother has continued nursing her baby until now. Her menstruation has as yet not returned. This swelling is soft, cystic in feel, about the size of a plum and moves with the act of swallowing, probably being connected with the thyroid. The latter is not palpable. My diagnosis is a cystic adenoma, which generally occurs during pregnancy. The woman is terribly worried over its presence. What treatment, if any, is necessary to reduce its size, assuming that the basal metabolic rate is within normal limits? What are the possibilities of the adenoma, assuming toxic influences? If when menstruation returns the mass does not disappear after some time, is surgery indicated? Kindly omit name. M.D., New York.

ANSWER.—Medical treatment of a cystic adenoma of the thyroid, occurring in pregnancy, is frequently disappointing. Sodium iodide in 10 grain (0.65 Gm.) doses, three times daily after meals, may be helpful if given continuously over a period of two or three weeks; the results obtained are not as satisfactory as in cases showing a diffuse enlargement of the thyroid. The danger of complicating toxemia, or malignant degeneration, is slight. Recourse to surgery will be necessary only in case of pressure symptoms or continued annoyance because the nodule is unsightly or causes worry. In this connection it may be well to call attention to the frequent incidence of thyroid disturbances in association with pregnancy. Deficiency of the thyroid at this time is particularly common in goitrous districts, and hyper-

thyroidism is also not unusual. The physician in charge of obstetric cases should be on the alert for evidences of either decreased or increased thyroid activity and should not hesitate to ask for metabolic rate determinations in patients who gain too little weight or who become unduly fat or who develop inexplicable edema.

DETERIORATION OF DIGITALIS

To the Editor:—At a county medical meeting some time back, a well known cardiologist advised the use of an alcoholic vehicle of at least 65 to 70 per cent alcohol content in dispensing tincture of digitalis to patients for use by teaspoonful doses, in order to prevent the rapid deterioration which, he asserted, took place when 70 per cent tincture of digitalis was mixed with ordinary elixir of lactated pepsin of 10 to 12 per cent alcoholic content. This was advised as a fairly accurate way of avoiding the use of varying size medicine droppers, with their larger degree of error. During the course of some postgraduate work in heart diseases, I was told that there was no need of such caution here, since the deterioration in the weaker mixture would not be of great moment. What are the facts here? The method employed was to use a measured amount of tincture of digitalis and a definite amount of the vehicle so that a certain dose of digitalis would be obtained in each drachm, without risking the error of the patient using any ordinary dropper each time. Of course, it is realized that the size of teaspoons also varies, but the variation is rather constant, since the patient uses the same size teaspoon each time, and he does not have to count drops or worry about the dose. Since if he uses the same spoon or set of spoons always, and his dose is regulated by its effect on his heart anyway, if the teaspoon used is a bit in error, no harm is done for his dose is regulated according to his own measuring tools, which he will use in the home. The vehicle with higher alcoholic content (as lactated pepsin elixir made up to 70 per cent with grain alcohol or the compound tincture of lavender) makes a very disagreeable mixture to take, and a comparison of results using the two vehicles does not seem to justify the high alcoholic content so far as I can tell. Again, the amount dispensed is only enough for two or three weeks' treatment and no visible change has often been noted. Also, the psychic effect on the patient seems better since it is much harder to make rural patients take a medicine that requires careful dropping out perhaps two or three times a day for months or years than it is to have them faithfully continue taking the medicine using the more familiar teaspoon. Is it not more important that the attending physician know his preparation and the usual effect of a certain dosage as he gives it on his patient and so to gage his prescription than to accept the additional burden of disciplining and educating a large class of cardiac patients in the accurate use of a minim dropper which is unfamiliar to them, insanitary, and enough extra trouble to the patient to encourage stopping treatment? Please omit name.

M.D., Illinois.

ANSWER.—The active principles of digitalis are glucosides, which decompose under a variety of conditions but which, for the greater part, are fairly stable. The elixir of pepsin of the National Formulary of 1916 contained 0.4 per cent (by volume) of hydrochloric acid, and that concentration of hydrochloric acid is quite sufficient to decompose some of the active principles of digitalis fairly rapidly, and probably all of them to some degree. This action is largely independent of the concentration of alcohol used in making the tincture of digitalis.

It is impossible to discuss adequately, in the limited space available here, all the causes of the deterioration of digitalis, but it may be stated that the official tincture of digitalis decomposes very slowly. Even the infusion is fairly stable, and Hatcher and Eggleston (*Am. J. Pharmacy* **85**:203, 1913) reported that no deterioration could be detected in an infusion which had been kept sealed during two years and five months.

The foregoing facts indicate that the official tincture of digitalis, which contains about 65 to 70 per cent alcohol, may be mixed with aqueous or alcoholic liquids without fear of rapid deterioration, provided there is no disturbing substance, such as hydrochloric acid, present. The addition of 1 cc. of tincture of digitalis (the average dose) to 7.5 cc. of the official aromatic elixir affords a mixture that is not disagreeable.

Digitalis U. S. P. may be dispensed conveniently in the form of tablets, which are considered quite stable.

TREATMENT OF X-RAY BURN

To the Editor:—Please outline treatment for a deep ulcer of the anterior wall of the abdomen which formed one and a half years ago as the result of an x-ray burn. Please omit name.

M.D., New York.

ANSWER.—Many different kinds of treatment have been advised and used for indolent ulcers following roentgen and radium treatment: methods such as heliotherapy, ultraviolet radiation, heat and various topical applications. Occasionally, some of these methods seem to be followed by fairly satisfactory results, but it is doubtful whether any of them are really useful. In most if not all these cases, it is probable that the recovery was spontaneous, although the method used might have been of some benefit. Small ulcers often heal spontaneously and large ones occasionally do so. By far the best treatment for these cases is plastic surgery. It is necessary to remove all the affected tissue and one must go deep enough to obtain a good blood supply and healthy granulations. Repair may be made by graft or a flap. If the operation is properly done, the patient is soon permanently cured. Without such operation the ulcer may heal in time, spontaneously, or possibly as a result of the various treatments mentioned, but even so the resulting scar tissue will be a menace throughout the remainder of the patient's life because such tissue is likely to ulcerate again as a result of slight traumatism or even spontaneously. Such ulcers, together with keratoses that are almost certain to develop, eventually may terminate in epithelioma.

EPHEDRINE IN HAY FEVER

To the Editor:—Is there any danger from the frequent use of ephedrine as a local nasal treatment for the relief of hay fever? If it is used each time sneezing and irritation develop in the nostrils, will better results obtain than if it is taken as a tablet internally?

M.D., Kansas.

ANSWER.—There is practically no danger from the frequent use of ephedrine as a local nasal treatment in hay fever. In a few instances, patients show nervousness and a slight tremor; in these cases it is better to reduce the use of ephedrine to a certain extent. In those cases in which local application in the nose produces much irritation, it is often better to give the ephedrine hydrochloride by mouth in the form of capsules each containing about three-eighths grain (0.025 Gm.) of the preparation. When untoward symptoms from ephedrine appear, they may often be reduced or relieved entirely by the addition of a small amount of one of the barbituric acid preparations to the ephedrine when it is taken by mouth.

IMMUNIZATION WITH DIPHTHERIA TOXOID

To the Editor:—I am interested in immunizing all children against diphtheria. I have been using diphtheria toxoid exclusively the last eighteen months. From my reading and reports of health authorities, it seems that toxoid is much superior to toxin-antitoxin. I would like your opinion on this question. Some manufacturers of toxoid are advising two injections as being sufficient. I have used three in every case. I have just learned of a series of cases in which only two injections of toxoid were given and only about 50 per cent were negative to the Schick test, whereas, when three injections of toxoid were given, immunity was reached in from a third to half the time required for toxin-antitoxin and a much greater percentage were negative to the Schick test. This being true, why not advocate strongly the exclusive use of diphtheria toxoid in this work? I have not had any reaction from toxoid.

CHARLES H. EMERY, M.D., Bedford, Ind.

ANSWER.—According to the reports, diphtheria toxoid immunizes better than the present dosage of toxin-antitoxin. Three doses of the toxoid will immunize more than two doses. Reactions are not troublesome in immunizing children with toxoid, and in immunizing adults unduly severe reactions may be avoided if the three regular doses are preceded by two preliminary doses of 0.1 and 0.25 cc. of the toxoid at an interval of one week. Diphtheria toxoid is rapidly replacing toxin-antitoxin in immunization against diphtheria.

PERCENTAGE LOSS OF HEARING

To the Editor:—What is the most generally accepted instrument for the testing of percentage loss of hearing?

M. H. NEWTON, M.D., Little Falls, N. Y.

ANSWER.—The generally accepted appliances for testing hearing to determine the percentage loss of hearing are one or another type of audiometer. The instrument most often used for office practice is the 2 A audiometer made by the Western Electric Company. There is a larger instrument, the 1 A, which is expensive and is used largely for research purposes. Among the other good instruments are the Jones-Knudsen audiometer, the Dean-Bunch, the S. W. Kranz and Dr. John Guttman Audiometers. In some of the instruments, especially the type devised by the Western Electric Company, the readings are given in terms of the number of sensation units lost. The figure can then be converted into percentage of loss of hearing. By means of the "constant" of decrement of damping, one is able with tuning forks to get the same reading or same curve showing the loss of hearing figured in sensation units, and this may then be converted into percentage of loss of hearing. To do this the tuning forks must be properly calibrated and supplied with the "constant" of decrement for each fork.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Clinical.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Boston, Dec. 21. Sec., Dr. Wm. H. Wilder, 122 S. Michigan Blvd., Chicago.

CALIFORNIA: *Reciprocity.* Los Angeles and San Francisco, Dec. 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden.

DELAWARE: *Regular and Homeopathic.* Wilmington, Dec. 8-10. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington.

FLORIDA: Jacksonville, Nov. 23-24. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

KANSAS: Kansas City, Dec. 8. Sec., Dr. C. H. Ewing, Larned.

KENTUCKY: Louisville, Dec. 1-3. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

MAINE: Portland, Nov. 12-13. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MARYLAND: Baltimore, Dec. 8-11. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

NEBRASKA: Lincoln, Nov. 23-24. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NORTH CAROLINA: *Endorsement.* Raleigh, Dec. 7. Sec., Dr. John W. MacConnell, Davidson.

OHIO: Columbus, Dec. 8-10. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus.

TEXAS: Fort Worth, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

UTAH: Salt Lake City, Dec. 1-2. Dir., Mr. S. W. Golding, 412 State Capitol Building, Salt Lake City.

VIRGINIA: Richmond, Dec. 8. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

WEST VIRGINIA: Morgantown, Nov. 19-21. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 West Wisconsin Ave., Milwaukee.

ADDITIONAL HOSPITALS APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals since the publication of the last previous list in THE JOURNAL, July 4:

Hospitals Approved for Intern Training:

Mercy Hospital, Buffalo.
St. Vincent's Hospital, Staten Island, N. Y.
L. Richardson Memorial Hospital, Greensboro, N. C.
James Walker Memorial Hospital, Wilmington, N. C.
Jameson Memorial Hospital, New Castle, Pa.
Northeastern Hospital, Philadelphia.
St. Luke's and Children's Homeopathic Hospitals, Philadelphia.
Washington Hospital, Washington, Pa.
Baroness Erlanger Hospital, Chattanooga, Tenn.
St. Joseph's Hospital, Tacoma, Wash.

Hospitals Approved for Residencies in Specialties:

General Hospital of Fresno County, Fresno, Calif.
Las Encinas Sanitarium, Pasadena, Calif.
DeEtte Harrison Detwiler Memorial Hospital, Wauseon, Ohio.
Jeanes Hospital, Philadelphia.
Mary J. Drexel Home and Children's Hospital, Philadelphia.
Children's Hospital, Chattanooga, Tenn.

Connecticut July Report

Dr. Thomas P. Murdock, secretary, Medical Examining Board, reports the oral and written examination held at Hartford, July 14-15, 1931. The examination covered 7 subjects and included 70 questions. An average of 75 per cent was required to pass. Twenty-eight candidates were examined, 25 of whom passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine		(1929)	79.5, 80.8, (1930) 79.4, (1931) 85.7
Georgetown University School of Medicine		(1930)	78.7
Johns Hopkins University School of Med.		(1927) 81.7, (1931)	82.3
University of Maryland School of Medicine and College of Physicians and Surgeons		(1930)	85.2
Boston University School of Medicine		(1930)	79.2, 82.7
Tufts College Medical School		(1929)	77.5, 87.4, (1930) 78.2, 78.6, (1931) 82.6
Columbia University College of Phys. and Surgs.		(1930)	76.2
Cornell University Medical College		(1931)	84.5
Long Island College of Medicine		(1930)	77.7
University and Bellevue Hospital Medical College		(1929)	81.9
Jefferson Medical College of Philadelphia		(1930)	80.5, (1931) 83, 84.3, 84.9
University of Toronto Faculty of Medicine		(1929)	80.5
University of Paris Faculty of Medicine		(1926)	78.3

College	FAILED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1930)	72.7
Osteopaths			40,* 65.2†

Dr. Murdock also reports 13 physicians licensed by endorsement at a meeting held, July 28, 1931. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine		(1924)	W. Virginia
Harvard Univ. Med. School		(1896)	Rhode Island, (1928) N. B. M. Ex.
Tufts College Medical School		(1928),‡	(1930, 2) N. B. M. Ex.
University and Bellevue Hospital Medical College		(1928)	New York
University of Pennsylvania School of Medicine		(1927)	New York
Woman's Medical College of Pennsylvania		(1911)	Maryland
University of Nashville Medical Department		(1905)	Florida
University of Virginia Department of Medicine		(1926)	New York‡
McGill University Faculty of Medicine		(1908),§	(1930) N. B. M. Ex.

* Examined in surgery only.
† Examined in medicine and surgery.
‡ License withheld until payment of fee.
‡ License withheld until definite residence intention is declared.
§ Licensed by special exemption.

Michigan Endorsement Report

Dr. F. C. Warnshuis, secretary, Michigan Board of Registration in Medicine, reports 71 physicians licensed by the endorsement of credentials from Jan. 1 to Aug. 12, 1931. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Stanford University School of Medicine		(1927)	California
University of California Medical School		(1927), (1930)	California
Yale University School of Medicine		(1928)	Penna.
George Washington University Medical School		(1928)	Dist.Colum., (1929) Ohio
University of Georgia Medical Department		(1928)	Georgia
Loyola University School of Medicine		(1928, 2), (1930)	Illinois
Northwestern University Med. School		(1927), (1928), (1929)	Illinois, (1930) Minnesota
Rush Medical College		(1921, 2), (1928), (1930)	Illinois
University of Illinois College of Medicine		(1916)	Wisconsin, (1928), (1930) Illinois
Indiana Univ. School of Med.		(1927), (1928), (1929), (1931)	Indiana
State University of Iowa College of Medicine		(1926), (1927, 4), (1928), (1929, 3)	Iowa
University of Kansas School of Medicine		(1928)	Kansas
University of Louisville School of Medicine		(1927)	Kentucky
Tulane University of Louisiana School of Medicine		(1924)	Louisiana
Johns Hopkins University School of Medicine		(1926)	Maryland
Harvard University Medical School		(1920)	Mass.
Tufts College Medical School		(1913)	Mass.
Detroit College of Medicine		(1896)	Wisconsin
University of Minnesota Medical School		(1927)	Minnesota
Washington Univ. School of Med.		(1919), (1927), (1930)	Missouri, (1928) Illinois
Creighton University School of Medicine		(1925)	Kansas
University of Nebraska College of Medicine		(1929)	Kansas, Nebraska
University of Buffalo School of Medicine		(1911)	New York
Ohio State University College of Med.		(1925), (1928), (1929)	Ohio
University of Cincinnati College of Medicine		(1928), (1929)	Ohio
University of Oklahoma School of Medicine		(1930)	Oklahoma
University of Pennsylvania School of Medicine		(1923)	Penna.
University of Pittsburgh School of Medicine		(1926)	Penna.
Medical Coll. of the State of South Carolina		(1927), (1928)	S. Carolina
Meharry Medical College		(1929, 2), (1930, 2)	Tennessee
Vanderbilt University School of Medicine		(1915), (1929)	Tennessee
Baylor University College of Medicine		(1929)	Texas
Medical College of Virginia		(1928)	Virginia
University of Virginia Department of Medicine		(1921)	W. Virginia
Marquette University School of Medicine		(1929)	Wisconsin
University of Toronto Faculty of Medicine		(1906)	New York

Wisconsin Reciprocity Report

Dr. Robert E. Flynn, secretary, Wisconsin State Board of Medical Examiners, reports 10 physicians licensed by reciprocity with other states at a special meeting held, April 14, 1931. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1916)	Illinois
College of Physicians and Surgeons of Chicago		(1886)	Illinois
Loyola University School of Medicine		(1930)	Illinois
Rush Medical College		(1929), (1931)	Illinois
University of Illinois College of Medicine		(1930, 2)	Illinois
University of Minnesota Medical School		(1930)	Minnesota
Medical College of Virginia		(1921)	Virginia
Queen's University Faculty of Medicine		(1926)*	Tennessee

* The license of this applicant is being withheld pending the receipt of a basic science certificate.

Book Notices

HISTOPATHOLOGY OF SKIN DISEASES. By Lee McCarthy, M.D., Associate Clinical Professor of Dermatology, Georgetown University Medical School. Cloth. Price, $25. Pp. 513, with 250 illustrations. St. Louis: C. V. Mosby Company, 1931.

To write a textbook on the difficult subject of cutaneous histopathology requires unusual will power and courage in addition to the necessary years of special clinical and laboratory training. Heretofore, dermatologists have relied for their information on the German textbooks of Gans, Kyrle and Friboes, the older voluminous work of Unna or the English handbook of Macleod, which has been out of print for some years. In undertaking this praiseworthy attempt to present an American textbook on the histopathology of skin diseases, the author has largely sublimated his personal views and has endeavored to give in an abbreviated form the accepted interpretation of dermatologists throughout the world. The pathologic material has been gathered from the collections of Arndt, Arning, Christeller, Friboes, Kren and Sabouraud. A few American dermatologists have supplied photomicrographs. The illustrations prepared under the expert direction of Monsieur A. Bessin of Paris are excellent, many in colors, and are clarified by suitable legends. The pathologic classification is thoroughly logical. The text is written in an interesting, readable style and each chapter has appended a well chosen bibliography. The highly technical nature of the content does not lend itself to a detailed analysis but the evident care and thoroughness with which the material has been assembled is a guaranty that the ideas expressed are authoritative and down to date. It is unfortunate that the author did not include a chapter on histologic technic and staining methods as practiced in the more important dermatologic centers of the world. This would have enabled him to present the latest methods of intravital staining elaborated in the Unna clinic, Bloch's technic for demonstrating the dopa-reaction, Osborn's method of showing arsenic crystals in the skin, Warthin's stain for spirochetes, and other modern technical procedures of importance to the laboratory worker. Nevertheless the author is to be congratulated on having completed the first American textbook on cutaneous histopathology, one that may remain a standard for many years to come.

DIAGNOSTICS URGENTS: ABDOMEN. Par H. Mondor, professeur agrégé à la Faculté de Paris, chirugien des hôpitaux. Cloth. Price, 145 francs. Pp. 846, with 245 illustrations. Paris: Masson & Cie, 1930.

This is a new monograph on the diagnosis of acute abdominal conditions in which it is imperative to make a prompt diagnosis and operate at once in order to save the patient from death within a few hours or days. The book does not contain any descriptions of the lesions themselves or any discussion of pathogenesis or treatment but is limited strictly to a consideration of symptoms and diagnosis. No fixed outline form is adhered to in the description of the various conditions. Those which are well known are briefly described, whereas the more unusual and less readily recognized conditions are discussed at greater length, including the latest information available. No set plan is adhered to. Each condition is discussed in a practical clinical manner, so as to be of greatest value to students and practitioners, and the descriptions are direct and to the point. The descriptions are complete, accurate and down to date, including, as they do, the most recent observations reported in the world's literature. The author gives due credit to the various clinicians whose observations are referred to but mentions their names only and has not included any bibliographic references anywhere in the book. Authorities quoted are numerous and the author is thoroughly acquainted with the literature, both French and foreign, and it would enhance the value of the volume enormously had he added, in each case, the exact reference in the literature, so that the original report could be found easily, if desired. While physical conditions and symptoms are critically described and analyzed at length and these are particularly stressed, roentgenographic and other laboratory observations receive proper emphasis. For example, about two pages is devoted to a consideration of the justification and possible benefits of a barium meal in acute intestinal obstruction. Similarly, the roentgenologic finding of an air bubble beneath the diaphragm is more valuable in the diagnosis of acute perforated gastric ulcer than the old and rarely present obliteration of liver dulness. The author points out that whereas the statistics of forty or fifty years ago showed that nine out of every ten patients with extra-uterine pregnancy died, that the same was true of cases of perforated appendicitis, and that perforated peptic ulcer always spelled death, today in the hands of well qualified surgeons of experience ten out of ten patients with extra-uterine pregnancy, if seen early, survive, nine out of every ten patients with perforated appendicitis survive, and eight out of nine patients with perforating ulcer can be saved. In the case of intussusception, even in a well nourished subject, or of perforated ulcer, in a vigorous individual 30 years of age, recovery cannot be expected if twenty-four hours is allowed to elapse before operative intervention is decided on. If the patient is seen before the twentieth hour, the surgeon can save eight or nine out of ten, whereas after the twentieth hour, particularly in these two conditions, the mortality will remain as high as it was forty years ago. While it is not possible to follow these acute cases for days, they can with propriety and advantage often be followed for some hours. The work is divided into five sections. The first deals with acute peritonitis, including perforative peritonitis from the various organs. The second includes all types of intestinal obstruction. The third covers intraperitoneal hemorrhage. The fourth includes acute gastro-duodenal dilatation, acute hemorrhagic pancreatitis, infarction of the small bowel, torsions of the various viscera, and volvulus. The fifth and concluding part deals with traumatic lesions of the abdomen, including contusions, gunshot wounds and stab wounds. The book contains a fund of valuable information, carefully evaluated and presented in a direct and forceful manner, and made easily available because it is well indexed. The alphabetical list of authors quoted alone fills eleven pages and gives a good idea of the care with which the current literature has been consulted. The work is forceful and modern and can be strongly recommended.

THE COMMON SENSE OF DRINKING. By Richard R. Peabody. Cloth. Price, $2. Pp. 191. Boston: Little, Brown & Company, 1931.

This is not, as its title at first might suggest, a defense of the beverage use of alcohol. The author states that while the book is aimed primarily at the inebriate, it should be of interest to all who drink, especially those who stand on the line between moderation and excess. Physicians will find in it helpful suggestions not only for the treatment of inebriates but for the guidance of those who are making their first experiments on the effects of alcohol on themselves. The author is not a physician but a student of psychology, whose theories of the genesis and treatment of inebriety are drawn from large experience. In his opinion the explanation of excessive drinking is to be found in an abnormal psychology and depends on character traits deeply rooted in personality rather than on exposure to drink. Certain individuals who are normal in other respects react abnormally to alcohol: these must eliminate alcohol from their lives or suffer serious consequences. "Once a drunkard," the author says, "always a drunkard—or a teetotaler." A minor rôle is assigned to heredity as a cause of inebriety. The author considers environment a more important factor, especially the environment in childhood, and states that the majority of inebriates are recruited from only children and youngest sons: "the drunkard is not only a child but a spoiled child." His desire for drink is an expression of the desire to escape from the realities of life. In surrendering to it he is following an *ignis fatuus*, in that he is seeking the impossible, "a narcotic escape from realty." The author believes the therapeutic problem to be one of mental and emotional reintegration. He makes it clear that he has no magic wand to wave over the patient's head, removing his desire for drink: the patient himself must do the actual work under guidance. The author does not concern himself with the task of sobering patients up, with the acuter manifestations of alcoholism, such as delirium tremens, or with the treatment of the physical ravages which inevitably follow excessive drinking: these are for the physician. The system of treatment recommended stands out in sharp contrast to the usual medical "cures" in that its field is specifically defined, and because it offers greater prospects of permanent relief from inebriety.

CHIRURGISCHE DIAGNOSTIK IM TABELLENFORM FÜR STUDIERENDE UND AERZTE. Von Dr. med. A. J. Cemach. Fifth edition. Cloth. Price, 20,50 marks. With 105 tables and 131 plates. Munich: J. F. Lehmanns Verlag, 1931.

The first edition of Cemach's work on surgical diagnosis appeared in 1914 and was essentially the same as this edition in the plan, scope, and manner of presentation of material. The work consists essentially of tables of differential diagnosis, between which are interspersed reproductions of photographs of actual cases, roentgenograms, drawings and diagrams, which constitute an atlas of surgical diagnosis and illustrate the differential points listed in the tables. There has been practically no increase in size of the volume since the first edition, though in the present edition a considerable number of new illustrations have been added, a few of which are colored drawings. The tables have been revised and brought down to date. A few surgical diseases are not included, because they do not fit in with the differential diagnostic tables, but this is of no great importance as they comprise only the rarer conditions. The work is not intended to take the place of a textbook of surgery, nor is it believed that students will use it as a quiz compend, for it is not well adapted for such use. It is published as an aid to students and practitioners in systematizing and grouping their knowledge, though chiefly for the general practitioner. It can be used to the best advantage by those with a good theoretical and clinical background. Apparently there is a real field for such a book, though it is of little value to any surgeon of experience.

COMMON PESTS: HOW TO CONTROL SOME OF THE PESTS THAT AFFECT MAN'S HEALTH, HAPPINESS AND WELFARE. By Rennie W. Doane. Cloth. Price, $4. Pp. 397, with 215 illustrations. Springfield, Ill.: Charles C. Thomas, 1931.

The author intended this work "as a manual or ready reference book for the farmer, the stockman, the gardener, the householder and all others who may at times be more or less troubled with pests." The book includes mainly pests of the United States, wherein nothing is omitted except the human pest. Because of the wide range of subjects covered—from chiggers to wolves—only the most essential facts in regard to each topic are discussed. Section one, composed of ninety pages, is devoted to pests of man and domestic animals. Among them are mites, ticks, mosquitoes, flies, bedbugs, lice, fleas and parasitic worms, of which not only something of the life history is given but also the diseases which they disseminate and simple methods of protection against them. Section two, of nearly 300 pages, is mainly of economic interest, dealing with pests of fruit trees, berries, grapes, vegetables, field crops and flower beds. Two chapters are devoted to certain mammals and birds which make nuisances of themselves. The book may be safely recommended by the physician to his patients who may wish to inform themselves on pests of the home or of the outdoors. The language is simple, the illustrations are profuse and the index is adequate. The make-up is in keeping with the high standard of Thomas books.

LES PREMIERS JOURS DU NOUVEAU-NÉ. Par Marcel Metzger, professeur agrégé à la Faculté de médecine de Paris, et André Héraux, assistant de puériculture à l'Hôpital Bretonneau. Paper. Price, 40 francs. Pp. 444. Paris: Gauthier-Villars & Cie, 1931.

This volume is one of a series of monographs on pediatric subjects. Marcel Metzger and André Héraux present a clinical review of the physiology and hygiene of the new-born infant, the methods of feeding, dressing and bathing. There is a brief discussion of the initial loss of weight, idiopathic icterus and genital changes in the normal new-born infant. Under artificial feeding methods, the use of evaporated and condensed milks is recommended in various simple dilutions, based apparently more on empiric methods than on the caloric and metabolic requirements of the infant. There is a simple clinical description of the various pathologic manifestations in the new-born, including such subjects as vomiting, hyperthermia, cyanosis, edema, infections, obstetric traumas, malformations, syphilis and tuberculosis. In discussing infections in the new-born, the authors comment on the two chief characteristics: the weak defense reaction against the majority of pathogenic micro-organisms and the multiple pathways for entrance of infection. The general clinical manifestations of syphilis in the new-born are outlined. Among those discussed are pemphigus, osteochondritis, splenic enlargement, syphilitic coryza, icterus and syphilitic septicemia. The latter type, whose incidence is given as 1 in 100 cases, is characterized by the widespread infection with spirochetes in every tissue of the body, with a rapid evolution of the disease resulting in death. In the treatment, ordinary neoarsphenamine, iodides and mercury compounds are recommended. No mention is made of the modern oral therapy of congenital syphilis by acetarsone. The monograph is concluded by a series of forty brief clinical records and weight charts, which illustrate most of the conditions described in the text. The treatment of the subject matter is brief and sketchy, and the material is presented in outline form.

STUDIES ON THE DIAGNOSIS AND NATURE OF CANCER. By Various Authors. Cloth. Price, $4. Pp. 240, with illustrations. New York: William Wood & Company, 1930.

This small volume is a collection of articles reprinted from the *Cancer Review*, a journal published by the British Empire Cancer Campaign. It contains five articles on the diagnosis of cancer of the bladder, colon, lung, stomach and throat. These are all by men of ability and, while not exhaustive, are valuable reviews of the subject. W. Sampson Handley has a short essay on the operative treatment of cancer of the breast, which contains nothing new. The remainder of the articles concern the metabolism of tumors; metabolism of the trophoblast; a paper on heredity in relation to cancer; an admirably sound paper by Major Greenwood on recent statistical study of the cancer problem, together with papers on tumors of the thyroid and on bone sarcoma, both of which are satisfactory surveys. The final essay, on immunity to transplantable tumors, is an excellent paper with a complete bibliography. It is from the pen of William H. Woglom, whose name is a guarantee of thoroughness and accuracy. Any one who is interested in cancer will find that this book will bring his knowledge well down to date without the necessity of laboring through obscurely written and massive monographs.

KOMMUNALÄRZTLICHE ABHANDLUNGEN. Herausgegeben von Dr. B. Harms, Stadtarzt, Berlin, und Dr. Fr. Wendenburg, Beigeordneter, Gelsenkirchen. 1: Zur Praxis der Schulgesundheitspflege. Von Dr. Wilfried Zeller, Stadtoberschularzt am Gesundheitsamt, Berlin-Tiergarten. Paper. Price, 8.50 marks. Pp. 88. Leipzig: Leopold Voss, 1931.

In a modest monograph, the author presents in exhaustive and detailed form the technic and mode of procedure for the practice of school hygiene in a large metropolitan area. The author correctly points out that there is much loose organization and haphazard management in this rather new field of child hygiene and welfare. He attempts in this book to project a plan of organization which would fit equally well the problem in the large metropolitan area and in the small community. The management of the large and the small group are well discussed. The activities in which the school physician should take part and which should be his concern are clearly defined in all their possibilities and their limitations. The extent to which the school physician can further disease preventive measures is indicated and also the extent to which he can suggest or introduce the delicate problem of therapeutic procedure. The author points out the considerable rôle the school physician can assume in the combat against infectious diseases and particularly in successful propaganda for protective immunization against such disorders. The problem of tuberculosis in the school child is well discussed from the same point of view. The value of the statistical material for worth-while scientific data in the fields of anthropometry, biometry, epidemiology and any number of clinical problems is obvious but is conditioned, as the author well points out, on exact functioning of the kind of work program he outlines. The rôle of the school and official school personnel and their functioning in a well ordered program of school hygiene is defined and the importance of complete cooperation between the physician and such agencies emphasized. Numerous valuable suggestions for future expansion of school hygiene work and its possible advantages for the community are offered. The author stresses the advantage and desirability of simplified record forms, and a valuable feature of the book is a complete set of every conceivably useful form of record and questionnaire. The little book contains a lot of valuable information for the specialist in this field.

Medicolegal

Conclusiveness of Medical Evidence

(Shaw v. American Ins. Union (Mo.), 33 S. W. (2d) 1052)

The plaintiff, as the beneficiary under an insurance policy on his wife's life, sued the insurer. The insurer by way of defense contended, among other things, that the insured, in her application for the policy, misrepresented the condition of her health, in that she stated that she had not had rheumatism, had not consulted a physician within five years and had not been treated for uterine disorders. To disprove the statements made in the application, the insurer introduced not only an abundance of oral evidence but also records of the Washington University Clinic and of the City Hospital. In rebuttal, the plaintiff offered oral evidence to show that his wife, the insured, appeared to be a healthy, normal person, complained of no illness, and had consulted no physicians until immediately before her admission to the hospital. The trial court gave judgment for the plaintiff. The insurer appealed to the St. Louis court of appeals. The insurer claimed that the trial court erred in refusing to direct a verdict in its favor on the basis of the evidence adduced. It contended that the evidence offered by it consisted, in part at least, of documentary evidence showing—conclusively, it contended—that the insured had made the misrepresentations alleged. The insurer admitted that the truth of such evidence was called into question by the plaintiff's oral evidence, but, the insurer argued, lay evidence in regard to health cannot serve to contradict, rebut or modify medical evidence.

The records on which the insurer relied, said the court of appeals, were admissible as records required by law to be kept, except to the extent that they were rendered inadmissible by an objection going to the question of improper identification or personal privilege. Even conceding, however, that the records showed what they purported to show, they were not conclusive as to the insured's alleged misrepresentations. Oral evidence, it may be granted, is not as reliable as written or documentary evidence, but this goes only to the weight of the evidence, not to its conclusiveness. For a writing to be conclusive as to the facts stated in it, it must be an instrument or record having legal efficacy, to which the person to be bound is in some way a part or the truth of which he vouches for or is estopped to deny. In this case the records offered in evidence did not come within this description. They were purely ex parte documents, largely hearsay, and vague and indefinite in many particulars. In certain instances they were shown not to have been made by licensed physicians, but by students who may or may not have been licensed to practice. Proper opportunity was not open to the plaintiff to examine the persons who actually made the records. Every material recital in such records was disputed in some degree by the plaintiff's oral evidence. Under such circumstances it is within the province of the jury to give the medical evidence such credit as it sees fit. The testimony of lay witnesses as to the health of the insured is not devoid of value as evidence, nor is it without probative force. If it contradicts the medical evidence and is believed by the jury, it is of sufficient weight and substance to support a verdict. Under such circumstances the request of the insurer for a directed verdict was properly refused.

The judgment of the trial court in favor of the beneficiary under the policy was affirmed.

Accident Insurance and Death Due to Aneurysm

(Kirkwood v. London & Lancashire Indemnity Co. of America (La.), 131 So. 703)

The defendant insurance company issued to the insured an accident insurance policy protecting "against loss caused by bodily injuries effected directly and independently of all other causes through accidental means." The plaintiff was the beneficiary named in the policy. While running to catch a street car on the morning of May 24 or 25, 1923, the insured fell to the pavement. He arose without assistance and after leaning for a few minutes against a post proceeded to his work. He worked until June 8, 1923. Thereafter he was confined more or less to his bed, until his death two weeks later. The plaintiff sued the insurance company for the amount named in the policy. The trial court gave her judgment. The defendant appealed to the court of appeal of Louisiana, Orleans, where the judgment of the trial court was reversed.

The medical testimony was in accord that the immediate cause of death was an aneurysm of the thoracic aorta. The defendant company contended that there was no proof of an *accidental* fall, but that in all probability, since an aneurysm causes shortness of breath and dizziness, the fall was caused by the aneurysm, not by an accident. The expert testimony was in conflict as to whether trauma can cause an aneurysm of the thoracic aorta. Three witnesses testified that such an aneurysm is never caused by trauma but is always the result of disease. Another witness questioned whether in this case the aneurysm could have been caused by the fall, but he admitted that it could have been aggravated by such a mishap. The attending physician testified that aneurysm might be caused by trauma, but when he testified that he had questioned the insured at some length as to whether or not he had previously suffered from any systemic infection he indicated very clearly, said the court, that he suspected that the aneurysm might have resulted from disease or infection. The appellate court was convinced that death resulted from the aneurysm and that the aneurysm existed prior to the fall. But, contended the plaintiff, if the fall aggravated the aneurysm and caused death sooner than it would have occurred otherwise, recovery under the policy should be allowed. By its very terms, said the court, the policy is limited to losses caused by accident, directly and independently of all other causes. Except for the aneurysm, the fall would have had no fatal result and probably no even serious result. The accident, therefore, in the opinion of the court, was not the direct and independent cause of the death.

Chiropractic: Treatment Limited to Manipulation.—The appellant, Heintze, was licensed to practice chiropractic in New Jersey under chapter 4, Laws of 1920, which apparently authorized chiropractors to treat human ailments by manipulation only. Heintze, however, used a vibrator, an electric light and the galvanic current. His assistant, in his presence, gave directions for a vegetarian diet and the use of flaxseed tea. That such practice does not constitute the practice of chiropractic, said the Supreme Court of New Jersey, but does constitute the practice of medicine and surgery, seems entirely plain. The medical practice act of New Jersey is not unconstitutional because it provides for a trial without a jury of persons charged with practicing medicine and surgery without licenses. The judgment of the trial court, convicting Heintze of practicing medicine and surgery without a license, was affirmed.—*Heintze v. New Jersey State Board of Medical Examiners (N. J.), 153 Atl. 253.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, New Orleans, November 18-20. Dr. Benjamin Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Association of American Medical Colleges, New Orleans, November 30-December 2. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central Society for Clinical Research, Chicago, November 20. Dr. Lawrence D. Thompson, 903 University Club Building, St. Louis, Secretary.

Philippine Islands Medical Association, Manila, December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

15: 1919-2433 (July) 1931. Supplement

Nature and Etiology of Cancer. H. G. Wells, Chicago.—p. 1919.

Studies on Histogenesis of So-Called Basal-Cell Carcinoma. S. R. Haythorn, Pittsburgh.—p. 1969.

Multiple Primary Carcinomas. F. R. Hanlon, Rochester, Minn.—p. 2001.

Fundamental Pathology of Infectious Myxomatosis. F. W. Stewart, New York.—p. 2013.

Leukoplakia of Esophagus. G. S. Sharp, New York.—p. 2029.

Report of Forty Tumors of Sheep (Ovis Aries, Jordan). W. H. Feldman, Rochester, Minn.—p. 2044.

Cancer of Thyroid: Its Radiosensitivity. C. D. Haagensen, New York.—p. 2063.

Tumors of Thymus: Pathology, Classification and Report of Cases. H. M. Margolis, Pittsburgh.—p. 2106.

Neoplasms in Lower Primates, with Description of an Osteogenic Sarcoma of Jaw in Macacus Rhesus. H. J. Bagg, New York.—p. 2143.

Hyperplastic Reaction of Skin to Sulphydryl and Its Significance in Neoplasia. S. P. Reimann, Philadelphia.—p. 2149.

New Stains in Tissue Diagnosis. C. F. Geschickter, Baltimore.—p. 2169.

Some Biologic Effects of Radioactive Substances: Study No. 1. Effects of Transplantable Mouse Carcinoma. J. W. Spies, New Haven, Conn.—p. 2173.

Id.: Study No. 2. Effects on Normal Rabbit. J. W. Spies, New Haven, Conn.—p. 2182.

Genetic Study of Transplantation of Tumors Arising in Hybrid Mice. J. J. Bittner, Bar Harbor, Me.—p. 2202.

Production of Tumors by Means of Purified (Protein Removed) Tumor Extracts. Margaret Reed Lewis, Washington, D. C.—p. 2248.

Tumor Strain Mice in Compressed Air. M. C. Marsh, Buffalo.—p. 2252.

Effect of Dietary Alkalosis on Growth Rate of Mouse Sarcoma. R. D. Barnard, Chicago.—p. 2265.

Treatment of Mouse Carcinoma with Thymus Extract (Hanson). O. O. Meyer and C. C. Simmons, Boston.—p. 2271.

Demonstration of Inhibitory Substances in Filtrate of Rous Chicken Sarcoma and Their Separation from Active Agent. M. J. Sittenfield, Balbina Johnson and J. W. Jobling, New York.—p. 2275.

Primary Melanocarcinoma of Gallbladder. S. R. Rosenthal, Chicago.—p. 2288.

Hemangio-Endothelioma of Thyroid Gland. C. O. Rice, Minneapolis.—p. 2301.

Adenoma of Kidney: Report of Case with Discussion of Its Relationship to Carcinoma (Hypernephroma). C. D. Creevy, Minneapolis.—p. 2309.

Primary Pulmonary Sarcoma: Review with Report of Additional Case. H. A. Ball, Los Angeles.—p. 2319.

Large Hemorrhagic Cyst of Prostate Gland. L. A. Hallock, New York.—p. 2331.

Metastasis of Basal-Cell Epithelioma: Case with Histologic Picture of Basal Cell Epithelioma and Clinical Course of Squamous-Cell Epithelioma. H. D. Niles, New York.—p. 2341.

Preliminary Report on Colloidal Lead Phosphate with Manganese. W. H. Kraemer, Philadelphia.—p. 2357.

American Journal of Hygiene, Baltimore

14: 235-514 (Sept.) 1931

Electrophoresis of Organisms Belonging to Diphtheria Group. R. L. Thompson, Baltimore.—p. 235.

Electrophoresis of Organisms Belonging to Pneumococcus Group. R. L. Thompson, Baltimore.—p. 244.

Immunity Reactions of Dog Against Hookworm (Ancylostoma Caninum) Under Conditions of Repeated Infection. O. R. McCoy, Rochester, N. Y.—p. 268.

Species Differentiation of Coccidia of Domestic Rabbit Based on Study of Oocysts. J. F. Kessel and H. A. Jankiewicz, Los Angeles.—p. 304.

Investigations of Endameba Histolytica and Other Intestinal Protozoa in Tennessee: II. An Epidemiologic Study of Amebiasis in Rural Community. D. F. Milan and H. E. Meleney, Nashville, Tenn.—p 325.

Comparative Study of Amebiasis in Man, Monkeys and Cats, with Especial Reference to Formation of Early Lesions. H. L. Ratcliffe, Philadelphia.—p. 337.

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Immunity of Rats to Reinfection with Trichinella Spiralis. O. R. McCoy, Rochester, N. Y.—p. 484.

Immunity to Walker's Rat Sarcoma No. 1. F. Donaghy and R. R. Hyde, Baltimore.—p. 495.

Anopheles Hyrcanus Var. Sinensis Wied., Transmittor of Wuchereria (Filaria) Bancrofti in Woosung District, Shanghai, China. L. Fengm, Peiping, China.—p. 502.

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Unification of Science and Its Relation to Control of Life. W. P. Graves, Boston.—p. 341.

*Gum Acacia in Treatment of Eclampsia. W. J. Dieckmann, St. Louis.—p. 351.

*Culture, Incidence and Treatment of Trichomonas Vaginalis. E. L. Cornell, L. J. Goodman and Mabel M. Matthies, Chicago.—p. 360.

Trichomonas Vaginalis (Donné), a Preliminary Study. I. F. Stein and Elizabeth J. Cope, Chicago.—p. 368.

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Spontaneous Rupture of Uterus Following Wedge-Shaped Resection of Fundal Portion. S. S. Rosenfeld, New York.—p. 436.

Transplantation of Ureter into Sigmoid in a Patient Whose Other Kidney was Functionless: Primary Recovery. J. M. Pierce, Ann Arbor, Mich.—p. 438.

Two Additional Cases of Acute Puerperal Inversion of Uterus Treated by Abdominal Replacement. F. C. Irving and F. S. Kellogg, Boston.—p. 440.

Congenital Hernia of Umbilical Cord with Eventration and Absence of a Sac. J. F. Krumm, Chicago.—p. 442.

Vaginal Speculum for Cauterization of Cervix. R. Lifvendahl, Chicago.—p. 444.

Acacia in Treatment of Eclampsia.—Dieckmann calls attention to the fact that the principal change in the blood in eclampsia is a concentration, which may be absolute or relative. Relief of this condition is usually accompanied by clinical improvement. Hypertonic solution of dextrose injected intravenously has given the best results in relieving this condition. Acacia solution has cured patients who did not respond satisfactorily to the usual methods of treatment. The probable explanation is that an injection of acacia solution increases the blood volume, lowers the viscosity, and thereby improves the circulation through tissues and organs. The author suggests using from 500 to 1,000 cc. of a 6 per cent solution of acacia. Much larger amounts have been given in shock, but the decrease in serum proteins in eclampsia is much more marked than would occur in shock and one cannot tell how low they can be artificially forced with safety. Normally as the proteins decrease, fibrin tends to increase, but following acacia this apparently is not true. Therefore, it is possible that the fibrin could be

decreased to such a degree that either the blood would not clot or, if it did, the clot would not be a firm one.

Treatment of Trichomonas Vaginalis Infections.—Dextrose broth with human serum was unsuccessfully used by Cornell and his associates as a medium for growing Trichomonas vaginalis. The Lynch medium, plain or modified by hydrocele or cyst fluid, was very good. The organism will grow on artificial mediums as well in winter as in summer. The disease is seen in patients of all ages. In a series of 581 gravidas, 10.15 per cent of the women harbored the organism. The infection is perhaps dependent on the hygienic life of the individual. Trichomonas vaginalis does not produce symptoms in all cases. Only twelve patients out of thirty-eight positive cases in the series complained of symptoms. The diagnosis of Trichomonas vaginalis infection cannot be made from the character of the discharge alone. Puerperal morbidity is not increased by the presence of Trichomonas vaginalis. The cervical erosions mentioned by Kleegman have not been noted. The modified Kleegman treatment has given the best results. The authors believe that a cure should not be pronounced until at least four menstrual periods have elapsed without treatment of any description.

American Journal of Physiology, Baltimore

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Nature of Substance Causing Ovulation in Rabbit. S. L. Leonard, Madison, Wis.—p. 406.

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An Unsuccessful Attempt to Demonstrate Humoral Action of "Vagus Substance" in Circulating Blood. N. E. Freeman, R. A. Phillips and W. N. Cannon, Boston.—p. 435.

Influence of Rate of Secretion on Concentrations of Potassium and Sodium in Dog's Submaxillary Saliva. M. I. Gregersen and Elizabeth N. Ingalls, Boston.—p. 441.

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Reflex Stimulation and Inhibition of Vasodilators in Sympathectomized Animals. N. E. Freeman and A. Rosenblueth, Boston.—p. 454.

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Roentgenologic Aspects of Childhood Tuberculosis. B. Goldberg, Chicago. —p. 397.

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Roentgenography in Brain Tumors: Its Value and Limitations Without Ventriculography or Encephalography. J. Gershon-Cohen, Philadelphia. —p. 414.

Ollier's Disease, Unilateral Chondrodysplasia: Case. R. S. Bromer and R. L. John, Philadelphia.—p. 428.

Roentgen-Ray Protection. L. S. Taylor.—p. 436.

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Infection of Monkeys with Donovan Organisms by Injections of Tissue from Human Lesions of Granuloma Inguinale. W. A. DeMonbreun and E. W. Goodpasture, Nashville, Tenn.—p. 311.

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Compensable Disability in Occupational Dermatoses. H. E. Alderson, San Francisco.—p. 401.

Prognostic Import of Negative Spinal Fluid in Early and in Latent Syphilis. H. H. Hopkins, Baltimore.—p. 404.

Treatment of Superficial Fungus Infections with Long Wavelength Roentgen Rays (Grenz Rays). M. Dorne and C. White, Chicago. —p. 409.

Acute Dermatitis Due to Opium Preparations. N. B. Heller, Newark, N. J.—p. 417.

Cholesterol Content of Blood Serum in Yaws. C. G. Aars and F. O. Nielsen, Paramaribo, Dutch Guiana, South America.—p. 418.

*Symptomatic and Asymptomatic Ringworm of Feet: Study of One Thousand Seventy-Three Consecutive Cases in Dispensary, Covering Period of One Year. A. Strickler and R. Friedman, Philadelphia.—p. 430.

*Treatment of Psoriasis: Continued Observations on Use of Crude Coal Tar and Ultraviolet Light. W. H. Goeckerman, Rochester, Minn. —p. 446.

Ringworm of Feet.—According to Strickler and Friedman, ringworm of the feet occurs epidemiologically in two varieties: symptomatic and asymptomatic. A certain portion of asymptomatic cases are apparently clinically negative and yet are microscopically positive for fungus. Asymptomatic cases are potentially symptomatic and constitute potent factors in the dissemination of the disease. Symptomatic ringworm of the feet today shows almost, if not quite, as high a percentage of incidence in patients who visit dispensaries as it does in private patients. It occurs in the lower social and economic strata of society with virtually the same degree of frequency as in the higher. Asymptomatic ringworm of the feet, from both the clinical and the microscopic point of view, shows an incidence among patients who frequent dispensaries so high as virtually to equal that for private patients. Ringworm of the feet today ranks as one of the most common if not actually the most common of all diseases of the skin. The intertriginous and hyperkeratotic clinical types occur in the asymptomatic cases with approximately the same degree of frequency that they do in the symptomatic variety of the disease. The vesiculobullous type of epidermophytosis of the feet is rarely if ever found in asymptomatic cases (it was not revealed in this study). If and when it does occur it evokes symptoms of such intensity as to force the patient to seek relief. Thus it may be concluded that the vesiculobullous type occurs only in the symptomatic variety of ringworm of the feet.

Psoriasis.—Goeckerman states that the use of tar and ultraviolet rays in the treatment for psoriasis is the outgrowth of a persistent effort not to "cure" but more effectually to control individual attacks. There is no evidence that this treatment will in any way fundamentally modify the course of the disease. Intervals of freedom from eruption are probably not determined by it. Psoriasis associated with arthritis responds symptomatically as well as psoriasis without arthritis. For some unknown reason the arthritis is materially benefited in about half the cases by treating the lesions of the skin. A small percentage of cases with rather distinctive clinical manifestations do not respond well to the treatment. Its beneficial effect in exfoliative dermatitis secondary to psoriasis is unique. It is not recommended as a measure to be applied as a routine for a few patches

of psoriasis, as other efficacious methods are more simple, but it can often be used without materially interfering with the patient's work. The scalp and nails do not lend themselves to this method of treatment. It is a decidedly valuable method for clearing up temporarily extensive and resistant eruptions on the glabrous skin and practically always succeeds when various forms of treatment by roentgen rays, chrysarobin or other substances and methods have failed or are contraindicated. The principles of the treatment must be applied and the simple technic mastered, or success cannot be expected.

Archives of Neurology and Psychiatry, Chicago

26: 469-686 (Sept.) 1931

Regenerative Possibilities of Central Nervous System. R. W. Gerard and R. R. Grinker, Chicago.—p. 469.
Injury and Repair Within Sympathetic Nervous System: I. Preganglionic Neurons. Sarah S. Tower and C. P. Richter, Baltimore.—p. 485.
Choroid Plexus as Dialyzing Membrane: I. Observations in Experimental Hydrocephalus. T. I. Hoen, Boston.—p. 496.
Ganglioneuromas of Central Nervous System. B. J. Alpers and F. C. Grant, Philadelphia.—p. 501.
Cerebral Birth Palsies: Contribution to Their Pathology with Report of Hitherto Undescribed Form. L. Freedom, Baltimore.—p. 524.
Cerebral Lesions in Purulent Meningitis. F. Wertham, Baltimore.—p. 549.
Fracture of Skull with Injury of Brain: Diagnosis of Laceration of Orbital Surface of Frontal Lobes. E. S. Gurdjian and N. H. Schlafer, Detroit.—p. 583.
Basophilic Adenoma of Hypophysis with Associated Pluriglandular Syndrome: Case. H. M. Teel, Cleveland.—p. 593.

Archives of Otolaryngology, Chicago

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*Infections of Middle Ear: Acute Systemic Infections from the Ear. I. Friesner, New York.—p. 257.
Antroscopic Diagnosis of Maxillary Sinusitis. E. Simon, Albany, N. Y.—p. 266.
*Why Ligate the Jugular Vein in Cases of Lateral Sinus Thrombosis? O. M. Rott, Spokane, Wash.—p. 272.
Method of Measurement of Tinnitus Aurium. E. M. Josephson, New York.—p. 282.
Lipoma of Larynx. O. J. Dixon and F. C. Helwig, Kansas City, Mo.—p. 284.
*Blood Picture in Otitic Infections. H. Rosenwasser and N. Rosenthal, New York.—p. 291.
Further Proof of Regeneration of Mucous Membrane in Human Antrum. G. McGregor, Toronto, Canada.—p. 309.
Sinusitis in Series of Alcoholic Hallucinoses. W. M. Dick and C. N. Colbert, New York.—p. 327.

Middle Ear Infections.—According to Friesner, the symptoms in acute systemic infections from the middle ear do not differ essentially from those of general invasions of other origins. It is true there are sometimes local manifestations, such as dilatation of the veins of the scalp and edema due to the extension of the phlebitis and thrombosis to the superficial veins through the emissary. Of importance, too, as a local sign is the enlargement of the lymph node at the angle of the jaw. Involvement of a lymph node in this situation through an adjacent phlebitis differs considerably from the ordinary adenitis secondary to an acute infection of the upper respiratory tract. In the former the node is firmer and, as a rule, much more tender. Occasionally there is pain or a feeling of fulness in the homolateral side of the head or pain in the eye. Indeed, the entire clinical picture may at the beginning closely resemble that of osteitis of the petrous pyramid with involvement of the fifth and sixth nerves. Occasionally the early symptoms of a sinus thrombosis resemble those of an abscess of the brain; there may even be physical signs suggestive of beginning involvement of the pyramidal tract. Fever, chills and sweats are common, although the chills occur in only half of the cases and infrequently in children. The fever is often at first sustained at a high level and only after several days do the characteristic drops in temperature and subsequent rises occur. Frequently the character of the temperature curve more than the height to which the fever rises suggests a general invasion. This is particularly true in aged and debilitated persons. The pulse is usually rapid and corresponds, at least in the beginning, with the temperature. As the disease progresses the pulse rate increases. An excessively rapid pulse rate is of unfavorable prognostic import. Enlargement of the spleen is common, and not infrequently both the spleen and the liver are palpable. The characteristic mental condition is euphoria, but the disease may begin with delirium or, having persisted for some time, may be associated with a psychosis or a wildly delirious state resembling the mental symptoms of belladonna poisoning. A rapidly progressive anemia follows the presence of hemolyzing organisms in the blood stream. As a rule there is a leukocytosis of moderate grade, not so marked as is usually found in erysipelas, pneumonia or meningitis. There may be a leukopenia. Metastatic infections secondary to otitic bacteremias may occur anywhere in the body. Treatment is solely surgical. Broadly it consists of an attempt to destroy the continuity of, and obliterate, the infected vessel. In this connection it must not be forgotten that a spontaneous cure of a phlebitis of the lateral sinus can, and not infrequently does, occur.

Lateral Sinus Thrombosis.—Rott states that in the matter of ligation of the jugular vein one is apt to attach to it an undue significance merely because of its time honored position in the various procedures advocated for the control of infection of the lateral sinuses. However, simply because a procedure has been carried on for years is no reason why subsequent data may not cause it to be discarded. Unceasing change is a universal law, and he thinks that the time will come when the procedure of ligation of the jugular vein will not be so universally practiced as it is today, just as today it is not practiced so universally as it was twenty years ago. The change will come slowly, because just now, especially when septic symptoms continue after operation on the sinus, one is afraid not to ligate. After ligation one has a feeling of security in knowing that all that has been advocated has been done, even though death supervenes, whereas, if ligation is not performed, one has to face the criticisms of colleagues who might think differently about the method of procedure adopted. However, if those who do not believe it best to ligate have the courage of their convictions and operate on the sinus early, bolstering up the resistance of the patient by all the means at their disposal, including frequent transfusions of blood, and if they fight just a little harder to justify their belief, the mortality rate will not be higher when ligation is not performed than when it is. The only indication to be met in the treatment for lateral sinus infection is the prompt removal of the infected area, whether that area is in the mastoid cells, the sinus plate, the wall of the sinus or inside the lumen of the sinus. Ligation of the jugular vein does not prevent absorption of toxins and bacteria into the general circulation and hence is a superfluous procedure. Ligation of the jugular vein should be reserved for definite infection in the vein, and then should be accompanied by resection.

Otitic Infections.—Rosenwasser and Rosenthal believe that the number of white blood cells and the ordinary differential count do not furnish sufficient evidence of the severity of an otitic infection. The simplified Schilling hemogram is an important diagnostic aid in otitic infections; the study of the young and of the staff cells during the course of otitic infections furnishes important evidence of the intensity of the existing infection. Observations of the cytoplasmic changes of the polymorphonuclear cells (toxic granules, vacuolization) are extremely important, from the prognostic standpoint. The relation between the polymorphonuclear cells showing toxic granules to the normal polymorphonuclear cells is the degenerative index. A steady rise of the degenerative index to about 80 per cent is indicative of an extremely grave prognosis. A rapid fall of this index to normal is of good prognostic import. The degenerative index runs parallel with the pathologic changes or the extent of the suppurative focus. The hemoglobin and red cells are rarely disturbed in the ordinary otitic infections, such as external otitis, acute otitis media and uncomplicated mastoiditis; in other words, only in infections associated with bacteremia, namely, sinus thrombosis, meningitis, in which one notes rapidly falling hemoglobin and a corresponding fall in the number of red blood cells. It is the authors' opinion that careful study of the blood, with especial emphasis in regard to the degenerative index, will yield more accurate information than will merely a consideration of the leukocyte count and a modified Schilling hemogram. Such types of blood studies seem to be particularly valuable as a diagnostic and prognostic aid in otitic complications.

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12: 517-574 (Sept.) 1931

Temperature Distribution with Different Diathermy Electrodes. A. Hemingway and D. Collins, Minneapolis.—p. 517.
Some Important Phases of Roentgenographic Diagnosis in Chest Diseases. J. J. Singer, St. Louis.—p. 526.
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Diathermy of Rectum and Pelvic Colon. H. W. Soper, St. Louis.—p. 545.
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Arkansas Medical Society Journal, Little Rock

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"Clinical Significance of Dysphonia." H. Dupuy, New Orleans.—p. 72.
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Colorado Medicine, Denver

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Indiana State Medical Assn. Journal, Fort Wayne

24: 455-533 (Sept.) 1931

Modified Aschheim-Zondek Pregnancy Test: Dependable Laboratory Test for Diagnosis of Pregnancy; Cases. B. W. Rhamy, Fort Wayne.—p. 455.
Conduct of Labor in Cases of Moderate Pelvic Contraction. D. L. Smith, Indianapolis.—p. 458.
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Preliminary Report on Right and Left Handedness in Rat. G. M. Peterson, Chicago.—p. 243.
Sucking Preference in Nursing Young Rats. L. S. Tsai, Chicago.—p. 251.

Journal of Experimental Medicine, New York

54: 453-627 (Oct.) 1931

Cultivation of Vaccine Virus for Jennerian Prophylaxis in Man. T. M. Rivers, New York.—p. 453.
Specificity of Precipitin Reaction in Tobacco Mosaic Disease. Helen Purdy Beale, New York.—p. 463.
Studies on Blood Cytology of Rabbit: VIII. Blood of Normal Rabbits as Index of Their Resistance to Transplantable Neoplasm. A. E. Casey and Louise Pearce, New York.—p. 475.
Effect of Testis Extract and of Normal Serum on Transplantable Epithelial Tumor of Rabbit. F. Duran-Reynals, New York.
Gradient of Vascular Permeability: IV. Permeability of Cutaneous Venules and Its Functional Significance. F. Smith and P. Rous, New York.—p. 499.
Protein Fractions of Scarlatinal Strain of Streptococcus Hemolyticus. M. Heidelberger and F. E. Kendall, New York.—p. 515.
Use of Mice in Tests of Immunity Against Yellow Fever. W. A. Sawyer and W. Lloyd, New York.—p. 533.
Studies on Filtrability of Bacterium Granulosis. P. K. Olitsky, R. E. Knutti and J. R. Tyler, New York.—p. 557.
Transmission of Virus of Mexican Typhus from Rat to Rat by Polyplax Spinulosus. H. Mooser, R. Castaneda, Mexico City, and H. Zinsser, Boston.—p. 567.
Studies on Relationship of Certain Variants of B. Typhosus: I. Agglutination and Agglutinin Absorption. F. B. Grinnell, Boston.—p. 577.
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Serum Sickness in Rabbits: I. Manifestations of Serum Sickness. M. S. Fleisher and L. Jones, St. Louis.—p. 597.
Duration of Demonstrable Antibodies in Serum of Rabbits Immunized with Heat-Killed Type I Pneumococci. E. G. Stillman, New York. —p. 615.
Localization of Pneumococci in Lungs of Partially Immunized Mice Following Inhalation of Pneumococci. E. G. Stillman and A. Branch, New York.—p. 623.

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Studies on Antibodies: II. Antipneumococcus Serum. K. G. Falk, Grace McGuire, Eugenia Valentine and Elinor Whitney, New York. —p. 199.
Id.: III. Agglutinin and Precipitin Reactions of Dried Antipneumococcus Preparations After Storage Under Various Conditions. Eugenia Valentine, Grace McGuire, Elinor Whitney and K. G. Falk, New York. —p. 221.
Studies of Properties of Bouillon Filtrate of Gonococcus. L. T. Clark and N. S. Ferry, Detroit, and A. H. Steele, Northville, Mich.—p. 233.
Chemical and Immunologic Studies of Pneumococcus: I. Specific Antigenic Carbohydrate of Type I Pneumococcus. A. Wadsworth and Rachel Brown, Albany, N. Y.—p. 245.

Journal of Industrial Hygiene, Boston

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*Rôle of Punctate Basophilia in Control of Industrial Plumbism. R. E. Lane, London.—p. 276.
Quantitative Measurements of Inhalation, Retention and Exhalation of Dusts and Fumes by Man: II. Concentrations Below 50 Mg. per Cubic Meter. C. E. Brown, Boston.—p. 285.

Punctate Basophilia in Control of Plumbism.—Lane found that punctate basophilia, as demonstrated by Sellers' method of staining, was present in a minor degree in approximately half of 223 normal subjects examined. Punctate basophilia on a more extensive scale is present in practically all workers exposed to a lead hazard. A quantitative estimation of the punctate basophilia is desirable and great stress must be laid on the size of the granules. Large granules have a greater significance than small ones and denote excessive absorption or mobilization of lead. The value of punctate counts in the diagnosis of plumbism is limited. Punctate counts are of extreme value in the prophylaxis of plumbism among lead workers and are essential in the adequate hygienic control of lead processes.

Journal of Nervous and Mental Disease, New York

74: 393-576 (Oct.) 1931

Contribution to Problem of Heredity Among Schizophrenics. M. Bleuler, White Plains.—p. 393.
*Cortical Herniations. C. T. Prout, Rochester, Minn.—p. 468.
Psychiatric Reactions from Dysinsulinism in Diabetic. H. J. Cronin, Cambridge, Mass.—p. 478.
Study of Psychogenic Factors in Thyrotoxicosis. H. E. Kiene and H. H. Dixon, Denver.—p. 483.
Insulin and Nonspecific Therapy—Common Mechanism: "The Nonspecific Syndrome." J. I. Margolis, New York.—p. 494.

Cortical Herniations.—According to Prout, multiple herniations of the brain are caused by increased intracranial pressure, but they are not always present in such a condition. Their presence is dependent not only on the duration of the increased intracranial pressure but also on its severity and the rapidity of its onset. In the author's experience they are most commonly found in the presence of tumor of the brain. Age is not an important factor, except that in advanced age there is a greater tendency to increased blood pressure and to temporary episodes of increased intracranial pressure. They are of importance from the standpoint of roentgen diagnosis because they must be distinguished from malignant tumors which erode the inner plate of the skull. Their situation is not important

in localizing lines of pressure. Evidence points to the fact they follow the villi, although they do not necessarily follow them in the presence of other dural weakness.

Medicine, Baltimore

10: 257-371 (Sept.) 1931

*New Conception of Some Morbid Changes Occurring in Diseases of Thyroid Gland Based on Experimental Studies of Normal Gland and Thyroid in Exophthalmic Goiter. W. F. Rienhoff, Jr., Baltimore.—p. 257.

Clinical Implications of Experimental Hematology. C. A. Doan, Columbus, Ohio.—p. 323.

Morbid Changes in Diseases of Thyroid.—Rienhoff believes that in order properly to interpret the structural changes encountered in the thyroid the present functional status of the gland as well as former variations in function must be considered simultaneously. Just as one expects to find the microscopic appearance of hypertrophy and hyperplasia in the thyroid of an individual with hyperthyroidism, so must the microscopic changes associated with involution be regarded as the structural substrate characteristic of a less active functional status of the gland. Involution is a term used to describe the microscopic appearance of the thyroid parenchyma which has been shown to be less active physiologically than the gland in which there is hypertrophy and hyperplasia. Involution may occur not only in a thyroid in which there is a pathologic hypertrophy and hyperplasia but in a gland the site of a physiologic hypertrophy and hyperplasia or even in a normal thyroid. Involution must be regarded as a positive regressive change in the structure of the parenchyma. Regardless of the type of gland in which it has its inception there will occur during involution a still greater deposition of colloid and a further flattening of the epithelium with yet more dilatation of the acini or follicles. Involution is not merely a passive or resting phase but as positive as hypertrophy and hyperplasia. The thyroid in which involution occurs is in a relatively less active functional status than before involution began. Thus the simple colloid goiter which has its beginning in a normal thyroid is one in which the process of involution has spread over approximately the entire gland. The basal metabolic reaction of patients with simple colloid goiter is usually low and below the normal for their age. These patients are also usually overweight and mentally sluggish, thus demonstrating that the thyroid is probably hypo-active. Just as in hypertrophy and hyperplasia, involution may occur in only limited and specific regions of the parenchyma with normal thyroid tissue intervening. These areas of regional involvement may appear as localized tumors or only nodules, with huge dilated follicles filled with heavy staining colloid and lined with epithelial cells so flat that they appear more like endothelial cells. In the past, these formations have been called "colloid adenomas." Not only do these areas of localized involution reduce the function of the remaining normal thyroid tissue by the amount of gland parenchyma consumed in their formation but they reduce it further by the pressure of the nodules of involution on the contiguous parenchyma. In the author's thyroid clinic the basal metabolism tests have always been below normal in patients with large nodular goiters without hyperthyroidism, many showing the clinical signs of hypothyroidism. The release from pressure of the normal thyroid tissue present, by removal of these large nodular goiters, permits the remaining gland to reapproximate its normal function. Within six months following double partial lobectomy in these cases the basal metabolism of the individual comes up to within normal limits.

Military Surgeon, Washington, D. C.

69: 379-482 (Oct.) 1931

Longevity of Army Officers in Relation to Physical Fitness. L. J. Reed and A. G. Love.—p. 379.

The Institute for Ship and Tropical Diseases at Hamburg, Germany. R. B. H. Gradwohl.—p. 386.

The A. R. A. in Russia. W. R. Dear.—p. 392.

Roentgen Diagnosis of Chronic Appendicitis. A. Bowen.—p. 407.

Postpneumonia Empyema. W. H. Michael.—p. 413.

Unusual Cases in Military Surgery: Case Reports of Congenital Hypertrophic Pyloric Stenosis, and Hemophilic Infiltration of Tongue. J. M. Troutt.—p. 419.

Typhus Fever: Case. D. C. Absher.—p. 425.

Traumatic Rupture of Heart: Case. J. W. Smith.—p. 428.

Selection of Flying Cadets: Medical Aspects. R. F. Longacre.—p. 431.

New Jersey Medical Society Journal, Orange

28: 679-730 (Sept.) 1931

Plastic Surgery. J. W. Maliniak, New York.—p. 679.

Some Difficulties of the Asthma Problem. G. H. Lathrope, Newark.—p. 684.

Dust Factor and Bacterial Factor in Asthma. R. Paddock, Newark.—p. 687.

Asthma from Standpoint of Rhinologist. L. A. Peer, Newark.—p. 692.

Child Hygiene. J. Levy, Newark.—p. 694.

Refraction and Health. P. Shope, Camden.—p. 697.

Squint in Childhood and Its Effect in Later Life. W. G. Mengel, Camden.—p. 700.

Common Conditions in Industrial Ophthalmology. G. J. Dublin, Camden.—p. 704.

Medical Possibilities of Sea Water. C. L. de Meritt, Union City,—p. 706.

Foreign Body in Urinary Bladder. R. L. McKiernan, New Brunswick and H. H. Goldstein, Elizabeth.—p. 709.

New York State Journal of Medicine, New York

31: 1127-1189 (Sept. 15) 1931

Hirschsprung's Disease: Treated by Lumbar Sympathectomy. T. W. Clark and F. M. Miller, Utica.—p. 1127.

Study of Prophylactic Value of Various Antirachitic Agents. A. G. de Sanctis and J. D. Craig, New York.—p. 1133.

What is Direct Laryngoscopy? J. W. Miller, New York.—p. 1136.

Problems in Diagnosis and Treatment of Trigeminal Neuralgia. C. H. Frazier, Philadelphia.—p. 1137.

Recent Advances in Ophthalmic Surgery. W. W. Weeks, New York.—p. 1141.

Perforated Peptic Ulcer and Simulating Conditions. M. J. Schroeder, New York.—p. 1145.

After-Breathing, a Useful Sign, in the Diagnosis of Diseases of the Lungs. M. S. Lloyd, New York.—p. 1147.

Recent Advances in Diagnosis and Treatment of Chronic Diseases of Nose and Throat. G. L. Tobey, Jr., Boston.—p. 1149.

Relief of Abdominal Pain by Sympathetic Ramisection. L. G. Barton, Jr., Plattsburg.—p. 1155.

Psittacosis. R. H. Riley, Baltimore.—p. 1159.

Report of Stubborn Case of Actinomycosis Cleared up by Electrocoagulation. L. J. Silvers, New York.—p. 1162.

A Relatively Obscure Case of Carcinoma of Breast. J. Burke, Buffalo.—p. 1163.

Pennsylvania Medical Journal, Harrisburg

34: 853-948 (Sept.) 1931

Certain Determinants of Rhinopharyngeal Infection and Its Systemic Dissemination: Their Bearing on Preventive Measures. deW. G. Richey, Pittsburgh.—p. 853.

Symposium on Vascular System: Treatment of Varicose Veins by Injection Method. G. W. Hawk, Sayre.—p. 859.

Blood Transfusion: Certain Suggestions to Increase Its Safety. H. W. Jones, Philadelphia.—p. 863.

Intravenous Therapy as an Aid to Surgical Treatment. E. Hess, Erie.—p. 866.

Public Health Reports, Washington, D. C.

46: 2291-2355 (Sept. 25) 1931

Outbreak of Undulant Fever Traced to Infected Milk Supply. H. E. Hasseltine and I. W. Knight.—p. 2291.

Functions and Limitatons of Government in Public Health Education. A. J. McLaughlin.—p. 2309.

Inspection of Ships for Determination of Mosquito Infestation. W. F. Tanner.—p. 2306.

Radiology, St. Paul

17: 425-660 (Sept.) 1931

Comparative Radiosensitivity of Pharyngeal Tumors. H. E. Martin, New York, and O. H. Pflueger, San Francisco.—p. 425.

Effect of Roentgen Radiation on Solutions of Tyrosine, Phenol and Tryptophan. W. Stentstrom and Anne Lohmann, Minneapolis.—p. 432.

Roentgenologic Study of Pulmonary Metastatic Growths. B. R. Kirklin, and H. C. Ochsner, Rochester, Minn.—p. 435.

Comparison of Various Sources of Interstitial Radiation. Edith H. Quimgy and F. W. Stewart, New York.—p. 449.

Experiments and Experiences with Various Contrast Mediums in Excretion Urography. A. C. Siefert, Oakland, Calif.—p. 471.

Extension of Roentgen-Ray Researches on Fine Structures of Colloids to Normal and Pathologic Human Tissues. G. L. Clard, C. S. Bucher and O. Lorenz, Urbana, Ill.—p. 482.

So-Called Calcifying Subacromial Bursitis. J. B. Carnett, Philadelphia.—p. 505.

Roentgenologic Diagnosis of Hyperplasias of Gastric Mucosa. F. Windholz, Vienna.—p. 514.

Quantitative Roentgen Diagnosis of Pleural Effusions. A. Bowen, Denver.—p. 520.

Lead-Lined Safe for Storing Large Amounts of Radium. L. F. Curtiss, Washington, D. C.—p. 529.

Effect of Experimental Cholecystitis on Concentrating Function of Gallbladder. L. Darnbacher and J. Sacks, Chicago.—p. 538.

Roentgen-Ray Protection. L. S. Taylor.—p. 542.

Clinical Value of Cholecystography by Oral Method. D. S. Beilin and G. D. Carlson, Chicago.—p. 559.

17: 661-904 (Oct.) 1931

Unrecognized Vertebral Fracture vs. Kümmell's Disease (Syndrome). F. W. O'Brien, Boston.—p. 661.
Oral Cholecystography of Today. W. H. Stewart and H. E. Illick, New York.—p. 674.
Irradiation of Tumors, with Especial Reference to Radiosensitive Tumors. M. Kahn, Baltimore.—p. 692.
On Specification of Roentgen-Ray Quality. R. B. Wilsey, Rochester, N. Y.—p. 700.
Measurements of Extremely Hard Roentgen Rays. H. Herrmann and R. Jaeger, Berlin, Germany.—p. 714.
Relation of Diaphragm to Gastric Peristalsis. M. Joannides and J. J. Litschgi, Chicago.—p. 723.
Traumatic Luxation of Coccyx. C. S. Oakman, Muncie, Ind.—p. 727.
Measurement of Lenard Rays. L. S. Taylor, Washington, D. C.—p. 736.
Simple Method for Calculating Doses with Multiple Points of Gamma Radiation. M. C. Reinhard and H. L. Goltz, Buffalo.—p. 752.
Radiotherapy with Small Quantities of Radium. P. O. Snoke, Lancaster, Pa.—p. 760.
Radiotherapy in Chronic Myelogenous Leukemia. R. G. Giles, Temple, Texas.—p. 764.
Clinical and Experimental Observations Relative to Etiology of Cancer. M. T. Burrows, Pasadena, Calif.—p. 775.
First Roentgen Evidences. O. Glasser, Cleveland.—p. 789.
Ultraviolet Irradiation in Treatment of Fractures. M. Ponzio, Turin, Italy.—p. 792.
Radium and Roentgen Ray Treatment of Myopathic and Thrombopenic Menorrhagia. B. F. Schreiner, Buffalo.—p. 796.

Rhode Island Medical Journal, Providence

14: 139-150 (Sept.) 1931

Review of Smallpox Vaccination. J. Smith, Providence.—p. 139.
Amblyopia Due to Emotional Displacement. H. E. Kiene, Cranston.—p. 141.

South Carolina Medical Assn. Journal, Greenville

27: 217-243 (Sept.) 1931

Uterine Hemorrhage. J. D. Guess, Greenville.—p. 221.
Development of Intravenous Therapy. O. B. Mayer, Columbia.—p. 226.
Introspection as Result of Medical Examination. C. F. Williams, Columbia.—p. 230.

Tennessee State Medical Assn. Journal, Nashville

24: 327-364 (Sept.) 1931

Surgery of Pulmonary Tuberculosis. R. Caldwell, Nashville.—p. 327.
Use of Sodium Amytal for Alleviation of Pain During Labor. M. S. Lewis and R. Hamilton, Nashville.—p. 339.
Some Facts and Problems Associated with Biliary Tract Disease. E. G. Wood, Knoxville.—p. 345.
Standardization with Roentgen Ray Versus Dogmatism in Diagnosis of Sinus Disease. C. D. Blassingame, Memphis.—p. 352.

Texas State Journal of Medicine, Fort Worth

27: 339-416 (Sept.) 1931

Some Recent Ophthalmic Surgical Procedures. C. A. Bahn, New Orleans.—p. 344.
Fractures Involving the Orbit and Paranasal Sinuses, with Especial Reference to Diagnosis and Treatment. W. D. Gill, San Antonio.—p. 351.
The Grass Bur as a Laryngeal Foreign Body. S. N. Key, Austin.—p. 358.
Surgical Treatment of Angina Pectoris. A. O. Singleton, Galveston.—p. 359.
Amebiasis of Colon: Its Radiologic Aspects. W. F. Henderson, New Orleans.—p. 363.
Some Observations on Spinal Anesthesia. L. W. Pollok, Temple.—p. 366.
Gallbladder Disease. H. J. Mixson, Beaumont.—p. 379.
Gallbladder Disease with Review of 100 Operative Cases. D. A. Mann, Beaumont.—p. 384.
Summary of Some Chemical Procedures of Importance in Clinical Pathology. M. Bodansky, Galveston.—p. 390.
Occurrence and Identification of Infection of Rocky Mountain Spotted Fever Type in Texas. H. A. Kemp and C. M. Grigsby, Dallas.—p. 395.
Vasomotor Rhinitis from Endocrine Standpoint. L. A. Nelson, Dallas.—p. 398.

United States Naval Med. Bulletin, Washington, D. C.

29: 581-788 (Oct.) 1931

Undulant Fever (Brucelliasis) with Especial Reference to 128 Cases in and About Dayton, Ohio. W. M. Simpson.—p. 581.
Fractures of Neck of Femur. D. S. O'Connor.—p. 598.
Surgical Goiter. K. E. Lowman.—p. 602.
Wartime Lessons Applied to Peacetime Warfare. W. S. Bainbridge.—p. 608.
Toxic Amblyopia. J. J. White.—p. 614.
Development of Dental Officers for Responsible Positions. W. Rehrauer.—p. 616.
"Rhinoneurosis." C. A. Swanson.—p. 618.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

48: 167-232 (Autumn) 1931

*Review of Seven Hundred Cases of Acute Appendicitis. H. Chitty.—p. 167.
Work of University Center of Cardiac Research. C. F. Coombs.—p. 179.
Sterilization of the Unfit. H. C. Bristowe.—p. 189.
Tetany Following Thyroid Operations. D. Wood.—p. 205.
Case of Congenital Obstruction of Bile Duct. J. A. Birrell and A. W. Adams.—p. 215.

Seven Hundred Cases of Appendicitis.—On the basis of his observations in 700 cases, Chitty believes that if every person with acute appendicitis could be operated on during the first twenty-four hours deaths from this disease could be almost completely abolished. At the present time most deaths are due to delay in diagnosis and treatment. The fault often lies with the patient who, when he has abdominal pain, sends for castor oil instead of for a doctor. The commonest mistakes of the general practitioner are: 1. He knows that most cases subside if left alone, and so he waits till he finds that this particular case is not doing so. In consequence, he may sacrifice the patient's life or cause him many weeks of invalidity. 2. He waits to make a diagnosis until signs of peritonitis have supervened, thus missing the most favorable time for operation. 3. He does not know that pelvic appendicitis is common, does not produce abdominal signs till late, and can be definitely diagnosed only by rectal examination. Of these three the last is nowadays the most frequent and fatal error. Gangrenous pelvic appendicitis accounts for most of the deaths, and it will continue to do so until a rectal examination becomes the invariable rule in every case of possible appendicitis in which physical signs are lacking in the abdomen.

British Medical Journal, London

2: 481-518 (Sept. 12) 1931

*Recognition and Treatment of Birth Injuries in the Newly Born. G. B. Fleming.—p. 481.
*Sore Throats of Other Than Tonsillar Origin. B. Russell.—p. 485.
Subarachnoid Block: General Analgesia; "Spinal" Anesthesia; Respiratory Paralysis; Fallacies and Methods. W. H. Jones.—p. 488.
Milk-Borne Streptococcal Infections. E. Wilkinson.—p. 494.
Intussusception Illustrated by Three Unusual Examples. J. Crooks.—p. 496.

Birth Injuries in Infants.—Fleming calls attention to the fact that the infant in its passage through the genital canal probably experiences more severe trauma than at any future stage of his existence. Few adults could survive such an experience. It is small wonder, then, that some infants die forthwith from what is miscalled "asphyxia pallida," really from shock, and that others die in a few days as the result of birth trauma. The majority fortunately survive, but all are injured to a greater or less extent. There is a remarkable contrast between the recuperative powers of infants from sepsis and from injury. To the former they show little, while to the latter they show wonderful, powers of resistance. Injuries to the skin and subcutaneous tissue, in the absence of sepsis, usually heal without leaving either deformity or disability. Fractured bones nearly always unite with great rapidity and without deformity. Injuries to the viscera on the other hand are usually fatal, at least those that are recognized usually end in death, though there must be many minor injuries which pass unnoticed and leave no after-effects. Of all the birth injuries those to the nervous system are most likely to leave permanent disability, though here again a grossly paralyzed limb may, within a few weeks, recover completely, and even intracranial hemorrhage may be absorbed without leaving any disability either mental or physical. Retinal hemorrhages always clear up within ten days or a fortnight. Once the first critical days have passed, if infection is avoided, most infants make a rapid and complete recovery from the trauma of birth. Of the deaths from birth injury, 68 per cent occur in the first three days of life. If the trauma is insufficient to kill rapidly, the majority recover completely. The prevention of birth injuries lies with the obstetrician, the treatment with the pediatrician. Obstetric maneuvers employed on behalf of the mother are frequently the cause of injury to the child. The induction

of premature labor may be essential for the well being of the mother, while for the infant a cesarean section at term would be a safer procedure. The use of anesthetics and opiates may be necessary for the mother, but it cannot be advantageous for the infant to arrive in its new surroundings in a drugged state. Antenatal treatment must prove of advantage to both mother and child. Treatment can sometimes be instituted so that pregnancy may be allowed to go to term and malpresentation can be rectified before labor commences. By antenatal care there should be reduction in both the maternal and the neonatal death rates. The points in the recognition and treatment of birth injuries that the author emphasizes are: (1) the prevention of sepsis in even the smallest superficial abrasion, (2) the recognition and treatment of fractures, (3) the recognition and early treatment of injuries to nerves, and (4) the careful nursing of the infant with intracranial damage.

Sore Throats Other Than Tonsillar.—Russell emphasizes the importance of the nose in the production of faucial and pharyngeal complaints. The way in which tonsils affect the nose is well recognized, but the converse is also true. It is unfortunately impossible for a laryngologist to follow up all his cases of tonsillectomy and see whether the operation has always succeeded in stopping sore throats, but general practitioners have sometimes the thankless task of so doing, and they have sometimes been disappointed in the results of tonsillectomy done for this purpose. One reason why this aspect of sore throats has to be examined afresh is a change that has arisen with regard to the skill displayed in tonsillectomy. Before the war, the explanation of the failure to cure symptoms was often that portions of the tonsils were still present after operation, especially during the period of enthusiasm that followed the demonstration by Sluder and by Whillis about 1910 that one could completely enucleate tonsils with the guillotine; and for ten or fifteen years the prevalence of tonsillar remnants and of scarred-up palates sufficiently explained the many failures to cure throats by tonsil operations. But although skill acquired by practice has led to a noticeable decrease in the number of incomplete operations, yet one not infrequently sees cases, in both children and adults, of sore throats persisting in spite of careful removal of tonsils and adenoids, especially in certain years. This was the case in 1919 and 1929 and also this year. The author's paper, ostensibly on throats, is really a covert attack on the antrum. He freely admits this, except that he would include hidden ethmoidal infection as being at least as frequent. He does not urge operation on the ethmoids in this connection but submits that there is a case for an early and not extensive operation on the antrum; and believing as he does that it is doubtful whether the mucosa can ever return really to normal when once it has got to the stage of chronic empyema, he recommends indications for drainage based on the repetition of a convincing chain of circumstantial evidence rather than a belated positive result of an exploratory puncture.

Edinburgh Medical Journal

38: 501-560 (Sept.) 1931

*Cardiac Output and Oxygen Utilization in Some Types of Heart Disease. I. Harris and I. J. Lipkin.—p. 501.
An Analysis of Bacterial Antigens on Basis of Chemistry and Function. J. M. Alston.—p. 522.

Cardiac Output and Oxygen Utilization.—Harris and Lipkin state that apart from gross heart failure it is impossible to differentiate between a normal and a diseased heart from cardiac output determinations alone. Cardiac output values obtained under resting and working conditions are of use in estimating the degree of cardiac reserve power: the smaller the difference between the two, the lower is the reserve power. Cardiac output stands in inverse ratio to the percentage utilization of oxygen. This is particularly pronounced when the cardiac output values after work in relation to those under resting conditions are compared with the percentage of increase of oxygen utilization work. The increase of stroke volume that results from work in relation to the increase in utilization of oxygen gives a clear indication in regard to the degree of reserve power of the heart. The normal individual reacts to exertion as far as possible by an increase in stroke volume, the diseased more by an increase in pulse frequency. A high percentage of oxygen utilization is a charaeteristic feature of auricular fibrillation.

Journal of Laryngology and Otology, Edinburgh

46: 661-728 (Oct.) 1931

Methods of Radiography in Sinus Affections. R. Mittermaier.—p. 661.
Skiagrams in Diseases of Maxillary Sinus: Their Surgical and Pathologic Significance. R. G. Brown.—p. 670.

Journal of State Medicine, London

34: 559-619 (Oct.) 1931

Rheumatism of Childhood. J. M. Beattie.—p. 559.
Health of Workers in Engineering Industry. A. Massey.—p. 569.
Problems of Cancer Treatment and Research, with Especial Reference to Tumor Immunity. T. Lumdsen.—p. 577.
Leprosy, Its Prevention and Control. R. G. Cochrane.—p. 583.
Some Points in Pathology of Filariasis: Filaria Bancrofti, Loa Loa and Onchocerca Volvulus Infections. G. C. Low.—p. 594.
Some New Antiseptics. C. E. Coulthard and F. L. Pyman.—p. 599.
Purification and Valuation of Tuberculin. E. Küster.—p. 605.
Prophylaxis of Rickets by Means of Irradiated Milk. K. Scheer.—p. 607.
Recent Investigations in Syphilis Immunity. R. Prigge.—p. 610.

Medical Journal of Australia, Sydney

2: 283-312 (Sept. 5) 1931

Treatment of Uterine Cancer. R. Fowler.—p. 283.
Some Aspects of Pathology of Uterine Carcinoma. R. A. Willis.—p. 293.
Treatment of Uterine Cancer. W. Cuscaden.—p. 297.

2: 313-344 (Sept. 12) 1931

Modern Methods in Urologic Surgery. H. Mortensen.—p. 313.
*Cancer of Rectum. L. M. McKillop.—p. 317.
Id.: B. Kilvington.—p. 320.
Physiology of Alimentary Tract Considered in Relation to More Common Disorders Met with in Radiologic Practice. D. J. Thomas.—p. 322.
Scope of Diet Therapy. Mabel G. Flanley.—p. 326.

Cancer of Rectum.—McKillop believes that cancer of the rectum is in some way often associated with polyosis of the pelvic colon and rectum and it is highly probable that constipation, by encouraging the effect of chronic irritation of retained excreta in a bowel possessing such adenomas, is an influencing factor of high degree in the production of rectal cancer. Early and carefully done colostomy is almost an absolute necessity in the treatment of rectal cancer. No attempt should be made in cancer of the anus or lower segment of the rectum to preserve the external sphincter, except in very early cases in which the patients are treated by radium. Every patient suffering from rectal bleeding, hemorrhoids, rectal discomfort or chronic sacral backache, especially if associated with early morning looseness of the bowels, should be given the benefit of a thorough rectal examination by the finger if not by a proctoscope. The ideal treatment for cancer of the pelvirectal junction and body of the rectum is excision in one (or two) stages by the method of Miles. The method next to be preferred is colostomy followed by thorough exposure of the rectum by the coccygeal approach and the planting around the growth of heavily screened radium needles. The best treatment for epithelioma of the anus, if seen very early, is by interstitially applied radium, followed by surface application through a paste mold. If, however, the patient is seen late, colostomy should be done and radium needles buried to give a total irradiation of about 6,000 milligram hours. Two weeks later, high voltage roentgen therapy should be applied to the inguinal lymph nodes.

Practitioner, London

127: 413-508 (Oct.) 1931

Value of Blood Examination in Obscure Cases. A. Piney.—p. 413.
Blood Transfusion. G. Keynes.—p. 422.
Agranulocytosis and Aplastic Anemia as Varieties of Bone Marrow Failure. F. P. Weber.—p. 430.
Simple Achlorhydric Anemia and Allied Forms of Anemia. L. J. Witts.—p. 439.
Treatment of Pernicious Anemia. W. Brockbank.—p. 449.
Anemias of Infancy and Childhood. A. C. Hampson.—p. 460.
Glandular Fever or Infective Mononucleosis. S. E. F. Gooding.—p. 468.
Value of Tryparsamide. J. P. Steel.—p. 484.
Treatment of Streptococcal Septicemia. C. E. Jenkins.—p. 492.

South Africa M. Assn. Journal, Cape Town

5: 513-548 (Aug. 22) 1931

Three Interesting Lung Cases. F. Forman.—p. 515.
Agglutination-Curve in Tick Bite Fever. A. Pijper and Helen Dau.—p. 519.
Curable Eyestrain. N. A. Stutterheim.—p. 522.
Diseases of Eye in Relation to General Medicine. M. M. Posek.—p. 527.
Salvarsan and Optic Atrophy. E. A. Seale.—p. 528.

China Medical Journal, Shanghai

45: 815-922 (Sept.) 1931

*Memorandum on Present Position of Prophylaxis Against Leprosy in Relation to Recent Improvement in Treatment. L. Rogers.—p. 815.
A Leper Colony: Its Management and Maintenance. R. M. Wilson.—p. 827.
Early Diagnosis of Leprosy. E. Muir.—p. 835.
Application of Gouin's "Réaction Leucocytaire" in Diagnosis of Leprosy. F. Reiss.—p. 840.
Notes on Leprosy in the Three Eastern Provinces. K. Y. Yu and H. W. Y. Taylor.—p. 855.
Leprosy in Yunnan. C. M. Galt.—p. 867.
Leprosy in Swatow District. E. H. Scott.—p. 869.
Notes on Incidence of Leprosy in Less Known Areas. J. L. Maxwell.—p. 875.
Preliminary Note on Leprosy in Szechwan. C. Canright and H. G. Anderson.—p. 880.
Systematic Treatment of Leprosy: Inpatients. L. F. Heimburger.—p. 886.
Systematic Treatment of Leprosy: Outpatients. N. D. Fraser.—p. 890.

Prophylaxis Against Leprosy.—Rogers deals with the principles which he believes should guide the application of present knowledge to the great problem of reducing and eventually stamping out leprosy from any country. In view of the great variations in the local conditions, each country must decide for itself how far these principles are applicable to their own conditions; but the nearer any area can get to carrying into effect the principles mentioned, the better the results will be. The immense stimulus given to research on leprosy by the discovery of an improved treatment will doubtless provide still more effective methods before long, and at the present transitionary period it will probably be advantageous for different countries to adopt somewhat varying methods in accordance with local conditions. The author would even welcome such an area as South Africa adhering to rigid compulsory methods, as such would furnish a valuable control to more modern methods in use elsewhere.

Annales de Médecine, Paris

30: 97-192 (July) 1931

*Primary Septicemia Due to Bacillus Funduliformis. P. Teissier, J. Reilly, E. Rivalier and V. Stefanesco.—p. 97.
Contribution to Study of Dermatomyositis: Case. G. Marinesco, S. Draganesco and E. Façon.—p. 145.
Treatment of Subacute and Chronic Malignant Endocarditis. M. Chiray, M. Liégeois, R. Benda and G. Albot.—p. 163.
Apiol as Cause of Fatal Anuric Intoxication. P. Trillat and H. Thiers.—p. 176.

Primary Septicemia Due to Bacillus Funduliformis.—Teissier and his co-workers state that Bacillus funduliformis was first isolated by Hallé in 1898. Many workers found the organism associated with other bacteria in gangrenous processes, but not one succeeded in demonstrating its specific pathogenicity and there was no mention in the literature regarding the rôle of the organism in human and experimental septicemias. In 1926 the authors isolated the anaerobe from a fatal case of septicemia in which the hepatic and blood systems were involved. At that time they considered the observations interesting because exceptional. But, later on, the same organism was isolated in three other cases of septicemia. The organism first enters the pharyngeal and tonsillar mucosa and is then carried in the blood stream, setting up foci of circumscribed necrosis in the lungs and again as a consequence of a subpleural microbic embolus causing suppuration of the pleura; or yet again the infection may be carried to the osteo-articular system and muscle sheath. The symptoms do not differ from septicemias due to various aerobic organisms, namely, fever, chills, acceleration and irregularities of the pulse, lowering of the arterial tension, alteration of the facies and dryness of the tongue; these symptoms are followed by rapid localization of metastases, with increase in the size of the liver, appearance of icterus and hemorrhages in the wake of the microbic multiplication in the hepatic parenchyma; there is a progressive accentuation of the dyspnea and a sudden local pain in one side denoting the spread of the infection to the pleura or the lung. B. funduliformis causes a massive gangrenous process in the parenchyma but does not cause the putridness which characterizes gangrenous infection. The latter eventuality is a function of other anaerobes that have the property of fermenting albuminoid matter and producing volatile bodies to which the odor is due. Oligocythemia in two of the cases reported was attributed to the high hemolytic property of the organism. Neutrophil polymorphic leukocytosis accompanied the oligocythemia. The prognosis of septicemias due to B. funduliformis is grave; three of the four patients succumbed. Hepatic and pulmonary localizations are the most serious; these are fatal within a short time (eight days, thirteen days, five weeks). Bacteriologic studies proved the organisms to be heterogeneous in regard to fermentation, bile solubility, antigenic power, but homogeneous in regard to their pleomorphic, nonproteolytic and hemolytic characteristics. The variations in morphology consisted of (1) spherical, giant forms, appearing and disappearing according to the physical conditions of the culture mediums and more often a characteristic of certain strains; (2) filamentous forms of tardy appearance and great vitality, probably a benign expression of microbic senescence. The organisms were highly virulent for animals, especially rabbits. Guinea-pigs, rabbits and monkeys were all used in the experiments. The animal experiments prove that B. funduliformis is organ-specific, having a predilection for the corresponding organs in animals as well as man. The authors have gone to great length to prove that all generalized monomicrobic infections developed in the absence of an initial gangerous focus are due to an anaerobic organism like B. funduliformis and that many septicemias attributed to other forms in the past may have been due to nonrecognized pleomorphic forms of B. funduliformis.

Gynécologie et Obstétrique, Paris

24: 97-192 (Aug.) 1931

Tuberculosis of Neck of Uterus. S. Bonnet and H. Bulliard.—p. 97.
*Relation of Uterine Fibromas to Arterial Hypertension. M. Vassitch.—p. 126.
Effect of Salt-Free Diet on Labor. J. Hofstein and Petrequin.—p. 133.
Dystocia Caused by Peculiar Accumulation of Fat in Small Pelvis. S. Tassovatz.—p. 139.
Pathogenesis of Vomiting in Pregnancy. J. N. Polonsky.—p. 143.
Pertussis Convulsiva Gravidarum Toxica. A. A. Lebedeff.—p. 150.

Relation of Uterine Fibromas to Arterial Hypertension.—Vassitch studied conditions of arterial tension in patients having uterine fibromas and in other patients not having fibromas and chosen at random. His observations confirm the belief in the frequent coexistence of uterine fibromas and arterial hypertension. He considers the action of uterine fibromas in arterial tension as a mechanical action, a "peripheral barrage" of some sort. It is also to the peripheral barrage through tumor compression that one has in the past attributed vascular and especially cardiac accidents in women with uterine fibromas. The author believes that the theory that the compression of the ureters by large fibromas influences renal functioning and reacts contrecoup on the cardiovascular circulation does not withstand examination of the facts. Six fibroma cases showed normal renal functioning with no albumin in the urine, or marked increase in the blood sugar; and in five of these, the arterial tension also proved to be normal. The author's researches do not substantiate the hypothesis that the fibrous tumor through its simple development leads to arterial hypertension. As for the hypothesis that considers the indirect action, through the endocrine glands, the author asserts that castration is always followed by a slight increase in arterial tension regardless of whether it is performed for adnexal disease or for uterine fibroma. His researches do not substantiate the hypothesis that hypertension is due to the castration. The age factor was considered and proved to be unimportant. Suppression of hemorrhage causes an increase in arterial tension. The author hesitates to contradict the possibility of a causal relationship between arterial tension and uterine fibromas; however, he believes that their frequent coexistence should be considered as an evolutionary coincidence, on the same substrata, of two disorders having analogous affinities.

Presse Médicale, Paris

39: 1261-1276 (Aug. 26) 1931

Recurring Luxation of Shoulder. J. Murard.—p. 1261.
*Luteoma: Ovarian Virilism. A. Cosacesco, St. Draganesco, M. Georgesco and G. T. Dinischiotu.—p. 1264.
Pulmonary and Laryngeal Tuberculosis. M. Aubry and L. Brodiez.—p. 1267.

Luteoma: Ovarian Virilism.—Cosacesco and his co-workers after two and a half years of study conclude that a physiologic suppression of folliculin as a result of an abnormal excess in

the corpus luteum may cause, besides amenorrhea, a profound modification of sexual characters similar to the changes following castration. Surgical intervention and the removal of a luteinic tumor results in the disappearance of the virilism and the disease condition with a return to normal of the ovarian secretion. Many human and animal experiments are discussed. The authors report one personal case and review two cases from the literature. They agree with some of the recent beliefs that suprarenal and ovarian virilism have a common origin; that the corpus luteum of pregnancy is a true transitory suprarenal cortex, and that in ovarian and suprarenal virilism there is a common anatomic element; namely, the cell with lipoidal granules.

39: 1309-1324 (Sept. 5) 1931

*Oscillometric Determination of Mean Blood Pressure. H. Vaquez and D. M. Gomez.—p. 1309.

Oscillometric Determination of Mean Blood Pressure.—In their studies, Vaquez and Gomez examined the column of blood between the mouth of the axillary artery in the innominate trunk and the segment of artery compressed by the cuff of an oscillometer. The column of blood is subject to two opposing forces: the pressure that exists in the innominate artery and the counterpressure of the cuff, which tends to press together the walls of the artery and oppose the course of the blood. If the blood pressure is above the counterpressure the blood penetrates under the cuff, separates the walls of the artery and forms what the authors designate as a wave of separation (une ondée de décollement); when on the contrary, for example during diastole, the counterpressure becomes higher than the blood pressure, the walls of the segment of the compressed artery tend to come together, expelling the blood that they contain and forming a wave of union (une ondée d'accolement). The oscillometer can record only the changes in the volume of that segment of the artery compressed by the armlet, changes due to the waves of separation and of union in that particular segment. The phenomena of oscillation should record on the sphygmogram the slightest changes in counterpressure. The authors worked on the assumption that the mean pressure coincides with the maximal oscillation or the oscillometric pressure. In practice it is not always easy to distinguish the maximal oscillation, since it is mingled with a series of other oscillations of the same amplitude; this results in a plateau curve. The authors' experiments were directed to add to the proof that the mean pressure parallels the oscillometric index. The index represents the volumes of the maximal waves of union and separation—the waves produced when the counterpressure has the same value as the mean dynamic pressure. When the oscillations present the same amplitude for various successive values of counterpressure, the oscillographic curve becomes a plateau curve. The maximal oscillation for fixing the mean is in that case quite impossible. These plateau curves are observed especially when the differential pressure or the difference between the extreme pressures is great. The plateau curve occurs in aortic insufficiency of the Corrigan type or the Adams-Stokes syndrome when there is marked slowing of the heart beats. To avoid a plateau curve, the authors advise an increase in the size of the segment of the artery compressed, which may be attained by increasing the width of the cuff. In this way the waves of separation are of a sufficient size to be recorded completely and there is enough blood in the segment to furnish waves of union. The oscillometric index makes it possible for the first time to determine the mean arterial pressure at the patient's bedside.

Revue Française de Gynécologie et d'Obst., Paris

26: 353-416 (July) 1931

*Radium Therapy in Noncancerous Diseases of Uterus. R. Koenig and F. Chatillon.—p. 353.
Treatment of Cancer at Geneva Gynecologic Clinic from 1914 to 1930: Radium Therapy in Cancer of Cervix. E. Held.—p. 373.
Primary Face Presentations: Spontaneous Correction; Two Cases. F. Chatillon.—p. 394.
Interstitial Pregnancy Occurring After Removal of Adnexa for Extra-Uterine Pregnancy. E. Held.—p. 401.

Radium Therapy in Noncancerous Diseases of Uterus.—Koenig and Chatillon, after discussing results of their sixty cases, make the following observations and conclusions: In hemorrhagiparous infections of the uterus (hemorrhagic metropathies and small fibromyomas), radium therapy constitutes a method of choice in the treatment of persons close to the menopause who can be cured by permanent suppression of the menses. In young women, this method of treatment can be used only in extremely exceptional cases. However, when all hemostatic means have failed, radium therapy can give excellent results in avoiding hysterectomy. A small dose of radium may sometimes regulate the menses and permit pregnancy itself. But the latter eventuality cannot be considered as certain; and in view of the risks taken in the issue of conception, this means should not be made a problem for experimentation. It is sufficient to apply a single dose of radium, with a dose regulated to obtain the desired result in whatever concerns the female before menopause. The method permits all gynecologists to treat these infections themselves, without being obliged to acquire expensive apparatus for roentgen therapy. Amenorrhea is obtained in from 95 to 99 per cent of the cases. The authors insist on the importance of an exploratory curettage before any radium is applied. Used in this way, radium implantation can be recommended to all gynecologists. They have in their hands a sure, inoffensive and rapid method which gives unfavorable results in only extremely rare instances.

Lotta Contro la Tubercolosi, Rome

2: 811-928 (Aug.) 1931

Clinical and Roentgenologic Observations in Cases of Early Tuberculous Infiltrate. U. Rabbiosi.—p. 811.
Atropine and "Insatiable" Pneumothorax. M. Lucacer.—p. 830.
*Direct Roentgen Therapy in Pulmonary Tuberculosis. E. Trepiccioni and A. di Natale.—p. 842.
*Need of Systematic Roentgenologic Examinations of Thorax of Prostitutes in Brothels. M. Romagnoli.—p. 860.

Direct Roentgen Therapy in Pulmonary Tuberculosis.—Trepiccioni and di Natale report that, in the fourteen cases of pulmonary tuberculosis in which they applied roentgen rays therapeutically, six of the patients did not evidence benefit, six showed improvement in the local and general conditions, two revealed a clinical and roentgenologic clearing up of the cavities present and the disappearance of the tubercle bacillus from the sputum. These two patients had undergone phrenic exeresis about three months before the beginning of the irradiations. In order to evaluate the efficacy of the roentgen treatment in these cases, and particularly in the last two cases, the question must be considered as to whether the healing of the cavities was spontaneous or whether it should be ascribed to the action of the phrenic exeresis. The authors exclude the spontaneous disappearance of the cavities in these cases because: 1. Spontaneous disappearance occurs usually in cavities of recent formation; in these patients the cavities were of long standing. 2. It requires a long time. 3. It is exceptional, although it does occur, as has been shown by roentgenologic researches in series. Dr. Righi (in their institute) observed only three spontaneous recoveries from cavities in about 300 patients with pulmonary tuberculosis and definitely diagnosticable cavities. As regards the action of phrenic exeresis, the fact that, three months after the operation, in these two cases clinical or roentgenologic changes of the cavities were not observed is fairly good evidence that the intervention was not sufficient to bring about of itself the recovery, although it is impossible to exclude absolutely a late favorable action. To the authors it appears more logical to assume a combined action of phrenic exeresis and roentgen therapy, in the sense that the phrenicectomy, distending the walls of the cavity, favored the intense process of local sclerosis stimulated by the complex action of roentgen rays. It will be of interest to learn whether in the further observations that have already been begun the results obtained in these two cases described will be confirmed.

Roentgenologic Examinations of Thorax of Prostitutes.—Romagnoli examined 100 prostitutes in brothels, with the following results: open pulmonary tuberculosis with positive expectoration, 4 per cent; pulmonary tuberculosis without expectoration or with negative expectoration, 10 per cent; external tuberculous glandular lesions, 5 per cent; suspected adenopathies, 10 per cent; predisposed, 2 per cent. Of the 100 prostitutes examined, 85 per cent were syphilitic; 25 per cent had gonorrhea, and 4 per cent had heart disease. The author

thinks that if public prostitutes throughout the country could be carefully examined and properly treated, it would constitute a marked advance in the crusade against tuberculosis.

Riforma Medica, Naples

47: 1287-1320 (Aug. 24) 1931

Mutual Effects of Sugar Content of the Blood and Effusion Fluids of Serous Membranes. G. Pansini and G. Caruso.—p. 1287.
Autolytic Peritonitis After Transplantation in the Abdomen of Organs and Tissues. D. Vallone.—p. 1293.
*Clinical Experiences with Therapeutic Action of Sugar Combined with Insulin in States of Cardiac Insufficiency. G. Macchioro.—p. 1297.
Ectopic Pregnancies. B. Sorrentino.—p. 1313.

Therapeutic Action of Sugar Combined with Insulin in States of Cardiac Insufficiency.—Macchioro states that, considering as a whole the patients treated, the outstanding fact was the feeling of subjective improvement noted by nearly all the patients after the second or third day of treatment, and sometimes even after the first day, although objectively (pulse, diuresis) the changes in a favorable sense were not so marked as to explain or justify such subjective improvement. The improvement was expressed by the patients with almost identical terms: diminution of the sense of oppression and shortness of breath, and consequently greater ease and freedom of respiration. In view of its harmlessness and practical value, the author concludes that the treatment in question deserves to be tried on a large scale in cardiac insufficiency. In the majority of the cases, the author did not observe variations of blood pressure worthy of note. The twenty-four hour specimens of urine showed a quantitative increase in nearly all cases. In a number of cases in which the tachycardia was marked, the sugar-insulin treatment relieved in an evident manner that pathologic manifestation.

47: 1323-1356 (Aug. 31) 1931

*Influence of Roentgen Irradiation of Thyroid on Deaminizing Functions of Liver in Exophthalmic Goiter. L. Alzona.—p. 1323.
Therapeutic Action of Italian Variety of Plant Periploca Greca in Heart Disease. D. Vaccari.—p. 1328.
Clinical Experiences with "Avertin" Anesthesia. E. Ettorre.—p. 1333.

Influence of Roentgen Irradiation of Thyroid on Deaminizing Functions of Liver in Exophthalmic Goiter.—Alzona concludes from his detailed study of eight cases of exophthalmic goiter that: Irradiations of the thyroid with inhibitive doses in patients with exophthalmic goiter cause inconstant changes of the amino-acidemic curve provoked. Such changes, when present, indicate a variation in the functioning of the liver in exophthalmic goiter patients, as a result of therapeutic roentgen applications, in the sense of a diminished deaminizing functioning of that organ. There is not a parallel relation between the intensity of the variations of the amino-acid curve and the improvements secured from the roentgen treatment. Such changes show that a diminished functioning of the thyroid is usually associated with a lessened efficiency of the deaminizing function (and hence of the hepatic function), which fact confirms in a measure the theory recently proposed by Pende concerning hepatothyroid synergism.

But. de la Soc. Catalana de Pediatria, Barcelona

4: 49-111 (April-May and June) 1931. Partial Index

*Clinical Value of Determination of Chloride Content of Cerebrospinal Fluid. M. Torelló Cendra.—p. 58.

Clinical Value of Determination of Chloride Content of Cerebrospinal Fluid.—Torelló Cendra made determinations of the chloride content of the cerebrospinal fluid in twenty-four samples of the fluid in normal and in pathologic conditions, to ascertain the clinical value of the test. His calculations were made on a basis of the examinations made on 1 or 2 cc. of the fluid. He reaches the following conclusions: The average normal figure is 7.1 Gm. of chloride per thousand cubic centimeters of cerebrospinal fluid. Oscillations of from 7 to 7.5 Gm. may be considered as being within normal limits. As a rule, meningitis is associated with a diminution of the chloride content in the cerebrospinal fluid, which is more noticeable the longer the disease lasts. An accentuated hypochlorurorrhachia (below 6 Gm. of chloride per thousand cubic centimeters of the fluid) is not an absolute indication of tuberculous meningitis. The determination of the chloride content of the cerebrospinal fluid may be of value for the differential diagnosis between tuberculous granulemia of a meningeal type and tuberculous meningitis. Tuberculous granulemia undergoes evolution with higher figures than those observed in tuberculous meningitis. In cases of chronic encephalopathy in infants, the diminution of the chloride content seems to be caused by anatomicopathologic cortical and meningeal lesions. In a case of granulemia of a meningeal type the graphic records of the chloride and albumin contents of the cerebrospinal fluid showed diminution of the chloride content and increase of the albumin from the beginning of the meningeal symptoms. However, whenever the convulsions appeared, the chloride content increased and the albumin content diminished. The author suggests that it would be of interest to study the possible relationship between the convulsions, the accidental hypertension of the cerebrospinal fluid and the temporary increase of the chloride content.

Prensa Médica Argentina, Buenos Aires

18: 389-436 (Aug. 30) 1931

Carcinoma of Ovary with Metastasis to Pleura and Peritoneum; Fibroma of Uterus: Case. T. Castellano and S. R. Amuchástegui.—p. 389.
*Diffuse Bone Endothelioma. J. Diez.—p. 396.
Fat Necrosis of Subcutaneous Tissues. D. Mosto.—p. 414.
Multiple Sclerosis Associated with Hemiplegia; Cerebrospinal Fluid in Multiple Sclerosis. A. F. Camauër and T. Negri.—p. 427.

Diffuse Bone Endothelioma.—Diez describes in detail the roentgen changes caused by diffuse bone epithelioma, by means of which the differential diagnosis between the tumor and other malignant bone diseases, especially bone sarcoma, may be made. The differential diagnosis between diffuse bone epithelioma and bone sarcoma is important both for the prognosis of the patient's life and for the treatment. Diffuse bone endothelioma, contrary to bone sarcoma, runs a slow evolution, and when early diagnosed is amenable to treatment. After an evolution of from two to three years, metastases appear indicating the proximity to the cachectic period. The treatment that gives the best results is the amputation of the affected limb. Next in importance is radium therapy and roentgen therapy, which should be resorted to in cases in which the performance of surgical exeresis is impossible owing to the localization of the tumor. The amputation of the limb should be preceded by (1) roentgen examination of the thorax and of the skull to be sure that metastases are not present, and (2) by biopsy, to inform one of the imperative necessity of performing the amputation as a result of the nature of the tumor. When metastases exist, the case should be considered too advanced for any benefits from operation. The possibility that biopsy may favor the development of metastases in case that the tumor is bone sarcoma is not as yet entirely proved. Still, even if proved, if the diagnosis is positive for bone sarcoma nothing is lost since bone sarcoma is always fatal, while, on the other hand, if the diagnosis is positive for bone epithelioma, the immediate amputation of the limb will probably save the patient's life. The author reports two cases in patients aged 14 and 26, respectively. In the first case the tumor developed in the first lumbar vertebra. It was removed after a laminectomy from the eleventh dorsal to the third lumbar vertebra. At the operation, destruction of the left transverse process of the first lumbar vertebra and infiltration to the adjacent tissues were found. The patient died three months after the operation in a cachectic condition. In the second case the tumor developed in the left humerus. The arm was amputated. Metastases did not appear after the operation. The patient is at present still in good condition. The macroscopic and microscopic observations of the tumor tissues from these two cases are explained in detail, with illustrations, in the text of the article.

Beiträge zur Klinik der Tuberkulose, Berlin

78: 1-242 (July 22) 1931

Protective Inoculation of Guinea-Pigs with B C G. H. J. Tiedemann and E. A. Schnieder.—p. 1.
Supposed Causes of Catastrophy in Lübeck. A. Komis.—p. 13.
Investigations on Filtrable Forms of Tubercle Bacillus. D. Szüle.—p. 18.
Does the Tuberculin Susceptibility of Guinea-Pigs Indicate the Existence of the Ultravirus? D. Szüle.—p. 27.
Question of Specificity of Macroscopic Changes Ascribed to Filtrable Forms. D. Szüle.—p. 32.

*Acute Miliary Tuberculosis with Aspects of Severe Blood Disease. Hertha Gottlieb.—p. 36.
Epidemiology of Circumscribed Acute Infiltrative Tuberculosis. R. Herrmann.—p. 45.
*Indurative Tuberculosis of Bronchial Lymph Nodes as Cause of Severe Hemoptysis in the Aged. A. Arnstein.—p. 55.
Specificity of Focal Reaction: Investigations on Allergic and on Allergic-Parallergic Persons. H. Fernbach and Gertrud Herzger.—p. 64.
Clinical and Experimental Investigations on Pathogenesis and Course of Hematogenic Tuberculosis and Its Relations to Apical Tuberculosis and Early Infiltrate. I. Steiger.—p. 87.
*Value of Phrenic Exeresis as Independent Intervention in Pulmonary Tuberculosis. F. O. Höring.—p. 105.
Influence of Patients with Open Tuberculosis on Members of Their Families. H. Söllinger.—p. 116.
Results of Examinations of Persons Who Come in Contact with Tuberculous Patients, with Especial Consideration of Roentgenologic Observations. J. E. Kayser-Petersen.—p. 140.
Pregnancy and Tuberculosis. Ilse Liers.—p. 170.
Id.: K. Riemer.—p. 184.
Working Capacity of Patients with Pulmonary Tuberculosis. I. Rüttgers.—p. 197.
Behavior of Cholesterol Content of Serum During Sojourn in High Mountains and Its Relation to Tuberculosis. A. Behrmann.—p. 214.
Inhalation of Cement Dust and Spreading of Tuberculous Infection in Lungs of Guinea-Pigs. J. Grober and G. Riemerschmid.—p. 222.
Thorough and Careful Disinfection of Wool Blankets. M. Hüttig.—p. 232.
Gold Therapy of Pulmonary Tuberculosis. R. Lohmann.—p. 237.
Aspects of "Benign" Intrathoracic Tumors. O. Wiese.—p. 240.

Acute Miliary Tuberculosis with Aspects of Severe Blood Disease.—Following a review of the literature of the concurrence and relations of blood diseases and miliary tuberculosis, Gottlieb gives the clinical history of a girl, aged 14, in whom the examination of the blood revealed severe anemia, leukopenia and thrombopenia. The disease was diagnosed as aleukia hemorrhagica. A blood transfusion of 600 cc., roentgen irradiation and injection of neoarsphenamine had no lasting effect and the girl died. The necropsy revealed a miliary tuberculosis. From the anamnestic data, which indicated an increasing paleness, and from the course of the fever it was impossible to recognize the miliary tuberculosis, the more so because the roentgenogram of the lungs did not give clear indications for a miliary tuberculosis, and also because the unusual blood picture diverted attention from other symptoms. The clinical symptoms, namely, the severity of the leukopenia, anemia and thrombopenia, the failure of the therapy and the fulminant and febrile course, indicated hemorrhagic aleukia or lymphatic leukemia with aleukemic hemogram; however, the necropsy showed that these blood diseases must be excluded, for the bone marrow was red, whereas in aleukia it is yellow. Acute leukemia could likewise be excluded since neither the macroscopic nor the microscopic observations gave indications for its existence. The fact that the greatest number and the most recent of the tubercles were in the liver, the spleen and the lymph nodes, that is, in the reticulo-endothelial system, and the abnormal accumulation of leukocytes around many of the tubercles may explain the marked leukopenia. The author ventures the following explanation for the behavior of the leukocytes and for the peculiar hemogram: At the beginning of the miliary dissemination there still was an adequate number of leukocytes, but when the organism was suddenly flooded with tubercle bacilli the leukocytes were needed for the protection of the organism. The bone marrow was not able to replace the great loss of leukocytes in the circulating blood, because it had been impaired by the toxic effects of the tubercle bacilli. The inadequacy of the leukopoietic apparatus soon spread to the erythropoietic apparatus and anemia was the result. The unusual paleness of the girl had been noticed long before the clinical manifestations of miliary tuberculosis, and the anemia was the first sign of a severe poisoning of the organism. The author concludes that this blood disease can be considered as an aregenerative anemia caused by the toxic action of a miliary dissemination of tubercle bacilli, and that this blood disease is extremely rare.

Indurative Tuberculosis of Bronchial Lymph Nodes as Cause of Severe Hemoptysis in the Aged.—Arnstein shows that in the aged, particularly in old women, hemoptysis as the result of simultaneous perforation of a shriveled or softened tuberculous or anthracotic lymph node into the bronchial tree and into a blood vessel is not at all a rare occurrence. In most cases this form of hemoptysis has a fatal outcome. However, in some cases there are shorter or longer remissions, until finally a fatal hemorrhage sets in. The author advises that if pulmonary hemorrhage develops in old persons and it cannot otherwise be accounted for, this condition should be thought of. Because of the scarcity of symptoms of the underlying disease of the lymph nodes the diagnosis is usually difficult. Positive physical signs and a positive roentgenogram are exceptions. On the basis of reports in the literature and of ten case histories given in this paper the author directs attention to the following signs that are helpful in the diagnosis: absence of another causal disease, circumscribed percussion, sensitivity of the lower portion of the sternum, difficulty in swallowing, irritation of the vagus, and expectoration of dark masses.

Phrenic Exeresis in Pulmonary Tuberculosis.—Höring shows that phrenic exeresis alone fulfils only partially the requirements of active treatments of tuberculosis and that it is inferior to other methods of collapse therapy. He emphasizes that the aim of collapse therapy should not be merely improvement but rather complete cure. Observations in fifty-six cases disproved the frequently claimed favorable influence on caverns of the upper lobes. The author concludes that phrenic exeresis as an independent intervention has only a limited applicability.

Dermatologische Wochenschrift, Leipzig

93: 1289-1332 (Aug. 15) 1931. Partial Index

*Hormonal Dermatoses in Women: Preclimacteric and Climacteric Skin Reactions. R. v. Leszczynski and S. Liebhart.—p. 1289.
Dermatitis Artificialis Caused by Glass Wool. S. von Szentkiralyi.—p. 1302.
Fatal Outcome of Dermatitis Exfoliativa Following Arsphenamine Treatment of Paralysis. M. Liebers.—p. 1305.
*Fatality Following Ambulatory Lumbar Puncture. H. Boas.—p. 1309.

Hormonal Dermatoses in Women.—Leszczynski and Liebhart discuss dermatoses that result from disturbances in the hormonal equilibrium of women particularly during the premenopausal and the menopausal periods. The pathogenesis of these skin reactions is as yet not entirely clear. It is not known whether they develop by way of the blood or of the nervous system, or whether they are angioneurotic manifestations, toxicodermias, retention or secretion dermatoses. The authors give nine case reports and then discuss the cutaneous manifestations. In all of the cases a severe itching was the dominant symptom. There also existed a predisposition for urticarial skin reactions and usually there was a more or less marked lability of the cutaneous vascular and nervous systems. As the result of the pruritus and of the urticaria, which led to rubbing and scratching, eczematous manifestations developed. Thus the eczema is not primary but secondary, but it is admitted that the toxic neurotic noxa, which causes pruritus and urticaria, may in severe cases cause exudative manifestations such as vesicular eruptions. The authors further discuss the results of the gynecologic examination. In some of the patients the uterus had been extirpated and defective functioning of the hypophysis and of the ovaries could be demonstrated. In two other patients the menopause was premature and in others it was belated. In a girl, the menarche was belated. Hyperthyroidism, and hyperfunctioning or hypofunctioning of the hypophysis and of the ovaries were also noted in some cases. Examination of the blood revealed polyglobulism and hyperglycemia. The patients were also subjected to metabolism tests, and the specific dynamic protein action was determined. The urine was tested for the presence of hypophyseal hormones according to the Aschheim-Zondek method. All these tests are necessary in order to determine a suitable and effective therapy. Hypofunctioning of the endocrine glands can be treated either by the administration of endocrine preparations or by the stimulation of the organ with roentgen rays or diathermy. In case of hyperfunctioning the treatment is more difficult. For the primary hyperfunctioning of an endocrine gland, roentgen irradiation (inhibiting dose) is perhaps the only treatment. In secondary hyperproduction an inhibitory effect can be obtained by the stimulation of the antagonistic endocrine organs.

Fatality Following Ambulatory Lumbar Puncture.—Boas reports the clinical history of a man who died as the result of a lumbar puncture. The fatality was caused by a sepsis following infection of the paravertebral tissues. This is the first case of this type that has been reported, for although fatalities after lumbar puncture have been described before,

they were not caused by sepsis but rather by other factors, such as hemorrhage. The reported case is a warning that careful asepsis is an absolute necessity in lumbar puncture, especially in the ambulatorium, to which patients often come in unclean garments.

Klinische Wochenschrift, Berlin

10: 1561-1600 (Aug. 22) 1931

Pneumonia and Its Pathogenesis. W. Ehrich.—p. 1561.
Demonstration of Suprarenals in Roentgenogram. F. Litten.—p. 1565.
Neuromuscular Changes in Diseases of Thyroid. R. Hansen and O. Voss.—p. 1567.
*Modification of Bactericidal Power of Blood by Mineral Salts. H. G. Scholtz.—p. 1569.
Resorption of Salicylic Acid Through Skin. H. Kionka.—p. 1570.
Encephalitis: Etiology and Treatment with Convalescent Serum. J. Brock. —p. 1574.
*Extrasystole in Children of School Age. M. Leffkowitz.—p. 1577.
Retraction of Blood Clot and Its Clinical Significance. K. G. Katrakis. —p. 1578.
Extract of Egg Yolk: Composition, Antirachitic Action and Influence on Calcium-Phosphorus Metabolism. E. Komm.—p. 1581.
Absence of Relationship Between Irritation of Cardiac Nerves and Formation of Humoral Substance by Vagus. L. Asher.—p. 1584.
Circulatory Processes During Shock. H. Mautner and E. P. Pick.—p. 1584.
Hormonal Influence on Plants and Increase of Hormonal Action by Red Rays. H. Küstner.—p. 1585.
Calcium Tolerance Tests in Scleroderma. S. Rothman and Irene Weiss. —p. 1585.
Surgical Treatment of Duodenal Diverticulum: Case. L. v. Friedrich. —p. 1586.

Modification of Bactericidal Power of Blood by Mineral Salts.—In the introduction, Scholtz points out that the therapeutic value of certain mineral salts has been demonstrated by various investigators, for instance the antiphlogistic action of calcium has been recognized, and intravenous infusions of magnesium sulphate have been found helpful in streptococcus sepsis. The author further reviews animal experiments on the therapeutic action of mineral salts and then describes his own tests on rabbits. The bactericidal index was determined with Wright's method and then the animals were given intramuscular injections of solutions of various salts. After the injections had been continued for five days the bactericidal index was again tested and it was found that injections of the solutions of calcium, potassium or sodium did not increase the bactericidal power. However, in the animals that had been treated with magnesium sulphate the bactericidal index was considerably increased; in one instance it had increased threefold.

Extrasystole in Children of School Age.—After prolonged observation of twenty-six school children, Leffkowitz reaches the following conclusions: Extrasystoles occur in children without heart disease as well as in those with cardiac disorders, but the subjective manifestations of extrasystoles are rarer in children than in adults. Ventricular extrasystoles are more frequent in children than the auricular extrasystoles. The functional capacity of the circulation is not impaired by extrasystoles. Ventricular extrasystoles are of no importance for the development of the heart, and the same is apparently true for auricular extrasystoles. However, in regard to the latter form the observations were limited and a final estimate is therefore not possible. The author considers treatment of extrasystole in children as unnecessary.

10: 1601-1648 (Aug. 29) 1931

Present Status of Knowledge of Relation of Chemism of Cells and of Tissues to Pathology of General Lipoidoses. E. Epstein.—p. 1601.
Determination of Size and Position of Various Parts of Heart During Rest and During Work by Means of Surface Kymograph. J. Arendt and H. Baumann.—p. 1607.
Relations Between Various Functions of Kidney. F. Mainzer.—p. 1609.
Investigations on Acute and Chronic Action of Pain Alleviating Remedies on Tactile Organ of Skin. E. Grünthal and G. E. Störring.—p. 1611.
Methods of Investigations on Blood Platelets. S. Horwitz.—p. 1613.
*Clinical Significance of Chloride Metabolism in Diabetes Mellitus. R. Kühn and L. Witscher.—p. 1616.
Behavior of Vacat-Oxygen in Persons with Circulatory Diseases. F. Kisch.—p. 1618.
Velocity of Blood Stream in So-Called Rheumatic Diseases. L. v. Pap. —p. 1620.
Signa "According to Directions" and Maximal Dose. W. Huebner.—p. 1623.
Demonstration of Cerebral Antibodies in Human Syphilis. J. Steinfeld. —p. 1624.
Idem: Reply to Preceding Article. F. Georgi and O. Fischer.—p. 1625.
Influence of Diet on Elimination of Urine and on Composition of Blood. W. v. Moraczewski and S. Grzycki.—p. 1626.
Investigations on Vaccine Virus. K. Herzberg.—p. 1626.
Eclampsia and Vascular System. E. Klaften.—p. 1627.

Clinical Significance of Chloride Metabolism in Diabetes Mellitus.—Kühn and Witscher show that in the metabolic disturbances of diabetes mellitus not only the metabolism of sugar, protein and fat, but also the chloride metabolism is involved. In all the more severe diabetic conditions there is a hypochloruria. It frequently precedes ketonuria, or, when other symptoms have disappeared, it indicates a latent, still threatening disturbance. In the most severe cases of diabetes mellitus hypochloremia can be demonstrated, and in the majority of these cases the authors also observed a hypochlorhydria or an achlorhydria. These disturbances in the chloride metabolism indicate changes in the tissue conditions, which the authors term "rigid" chloride retention and which they consider as the direct result of the hypofunctioning of the pancreas.

Wiener Archiv für Innere Medizin, Vienna

21: 329-488 (July 15) 1931

Standardization of Male Sex Hormone. W. Schoeller and M. Gehrke. —p. 329.
*Relations Between Anterior Lobe of Hypophysis and Generative Glands. W. Hohlweg and M. Dohrn.—p. 337.
Protoplasma Hysteresis and Cyclic Processes. V. Růžička.—p. 351.
Animal Experiments with "Anterior Pituitary Hormone" from the Urine of Pregnant Women and with Substance from Anterior Lobe of Pituitary Body. J. Novak and H. Kun.—p. 359.
Male Sex Hormone and Its Clinical Application. H. Benjamin.—p. 369.
Activation of Underdeveloped Breeding Animals by Increasing Production of Sex Hormone. F. Grüter.—p. 381.
*Influence of Peripheral Circulation on Alimentary Hyperglycemia: Effect of Vasodilator and Vasoconstrictor Measures. R. Loebel.—p. 387.
*Id.: Influence of Heat and Cold on Blood Sugar. R. Loebel.—p. 395.
Relative Insufficiency of Pulmonary Valve in Cicatrizing Processes of Left Upper Lobe. W. Neumann.—p. 403.
Causes of Fever in Bleeding Gastric and Duodenal Ulcers and in Loss of Blood. B. Purjesz.—p. 413.
Action of Mersalyl in Diabetes Mellitus. H. Bix and L. Wechsler.—p. 427.
Erythrocyte Sedimentation Speed During Prolonged Athletic Activity. F. Deutsch and E. Weiss.—p. 439.
Center of Epinephrine Secretion and Nervous Regulation of Blood Sugar. G. Monasterio.—p. 451.
*Changes in Blood Lipoid of Syphilitic Patients. P. Neuda.—p. 455.
Plethysmographic Tests on Changes in Volume of Vessels of Arm Produced by Variations in Pressure of Cuff. E. Schill.—p. 461.
Unusual Aspects of Deficiency Disease: Origin of Avitaminotic Symptoms. H. Abels.—p. 473.

Relations Between Anterior Lobe of Hypophysis and Generative Glands.—Hohlweg and Dohrn observed in rats that castration produces changes in the anterior lobe of the hypophysis. These changes develop irrespective of the age or the sex of the animal, and the changes can be prevented or be made to disappear again in infantile females as well as in infantile males by administration of the female sex (follicle) hormone. The quantities of this hormone that are necessary to produce these effects in females and in males, respectively, are in the proportion of 1 to 12. The experiments also revealed that the ovary of the infantile rat produces one thirtieth of a rat unit of follicle hormone each day. Implantation into infantile female rats of the anterior lobe of the hypophysis from animals that following castration had been given follicle hormone did not produce estrus in these animals. However, the anterior lobe from castrated animals that had not received follicle hormone produced estrus when implanted into infantile rats. The changes in the action of the anterior lobe of the hypophysis following castration could also be observed in ovarian transplantation experiments. Implantation of an ovary into a castrated infantile animal is ineffective when it is done immediately after the castration, but it is effective when done three weeks later, for by this time the anterior lobe already shows the increased activity produced by the castration. From these observations the authors conclude that under normal conditions there are quantitative hormonal relations between the anterior lobe of the pituitary body and the generative glands in that certain quantities of the hormone of the anterior lobe stimulate the production of certain quantities of the hormone of the generative gland and that by direct and indirect reaction of the hormone of the generative gland on the anterior lobe the latter produces only a limited quantity of hormone.

Influence of Peripheral Circulation on Alimentary Hyperglycemia.—Loebel made sugar tolerance tests on persons in whom the extremities were not active, that is in patients with articular disturbances, neuralgias, hemiplegias or fractures, and he found an increased hyperglycemia. When measures were taken which hindered the circulation, such as stasis or elevation of the extremity, the alimentary hyperglycemia was further increased; however, injection of a vasodilator substance reduced the alimentary hyperglycemia. From these observations the author concludes that there is a close relationship between peripheral circulation and alimentary hyperglycemia, and that not only reduced filling (elevation and hemiplegia) but also stasis effects an increase of the alimentary hyperglycemia. Evidently every form of obstruction of the peripheral circulation increases the alimentary hyperglycemia, whereas vasodilator remedies effect a decrease.

Influence of Heat and Cold on Blood Sugar.—Loebel observed that heat in the form of hot baths or of incandescent light baths as a rule influences neither the blood sugar while a person is fasting nor the alimentary hyperglycemia. Occasionally the sugar tolerance is slightly decreased. The formerly generally accepted opinion that heat effects a reduction in the blood sugar content has already been disproved in animal experiments, and it is now no longer tenable for human subjects. The effect of cool baths becomes manifest in an increased sugar content not only while the person is still fasting but also in a more marked alimentary hyperglycemia. This increase in the blood sugar following cold baths is considered by the author to be the result of an impairment of the peripheral circulation.

Changes in Blood Lipoid of Syphilitic Patients.—Neuda points out that the clinical analysis of the iodine tolerance of syphilitic patients indicates qualitative changes of the body lipoids. The chemical analysis of the blood lipoids in normal persons and in syphilitic patients corroborates this assumption. It could be demonstrated that the phosphatides showed an absolute and relative increase in comparison to the total lipoid content, and in some of the cases the total lipoid content was likewise increased. The determination of the iodine number in syphilitic patients revealed an increase of unsaturated fatty acids. It is assumed that the two conditions have a certain relationship in that the qualitative changes of the blood lipoids create a predisposition for the development of unsaturated fatty acids.

Sovetskaya Klinika, Moscow

15: 107-246, 1931

*Indeterminate Sex. N. S. Soloviev.—p. 112.
*Anthrax. L. A. Rosener.—p. 122.
*Spleen and Active Immunity. S. G. Shchedrovitsky, A. M. Korabelnikova and E. K. Lopatina.—p. 136.
*Spleen and Intermediary Metabolism. S. A. Seltser and S. G. Shchedrovitsky.—p. 143.
Creatinine-Creatine in Diabetes. Y. Z. Bernshtein.—p. 154.
Cancer of the Duodenal Papilla. V. L. Mikheleva.—p. 159.
Primary Cancer of Liver: Case. M. G. Salovey.—p. 165.
Statistics of Epilepsy in a Neurosurgical Clinic of Moscow. E. M. Rossels.—p. 172.
Prophylaxis and Treatment of Chronic Epidemic Encephalitis. S. A. Sagal.—p. 197.
Clinical Aspects of Inherited Dystrophies of the Muscularis of the Intestines. V. V. Zikeyev.—p. 207.
Professional Diseases of Aniline Industries. L. S. Latishev.—p. 212.

Indeterminate Sex: Heterosexuality, Bisexuality, Homosexuality.—Soloviev, after a discussion of the literature and a review of three personal case histories, makes the following observations: Sex in man, as well as in animals, can be idiotypical or phenotypical. Idiotypical characteristics are transmitted by genes through X and V chromosomes. Genetically, sexual tendencies follow the law of Mendel. A polyvalent gene may transmit various characteristics. Sex varies according to the combinations of genes: exterior phenotypical elements (progamous or epigamous) may at times cause sexual perversion as well as tendencies to cyclic sexual variation. The author believes that humoral and endocrine factors are all important in the tendencies governing the determination of sex. Perversion or irregular sexual development, more recently called hermaphrodism, in reality belongs to the network of growth, inheritance tendencies, physical appearance, and other, some not yet definite, properties. Thus, abnormal deviation in sex determination depends on the regulatory function of the chromosome apparatus. Understanding of pseudohermaphrodism and hermaphrodism is at present subject to criticism since the understanding of their relationship to the present knowledge of sex is far from satisfactory. The localization of many sexual dystrophies cannot be determined clinically or anatomically. Individuals that have indications of mosaic sexual inheritance should be grouped under the classification of indeterminate sex. The clinical attack in these instances should be based on the recognized elasticity of sexual characters as well as the probable bisexual nature of the individual.

Anthrax.—Rosener reviews the endemiology of anthrax as well as the Russian local and foreign literature. He declares that the figures for the entire Soviet Union reach the 15,000 to 17,000 mark every year. The old classification recognized four forms, the cutaneous, intestinal, pulmonary and septicemic; the author recognizes only two, the external, cutaneous form (99 per cent) which could become septicemic, and the less frequent, internal hematogenous, septicemic form (1 per cent), which may form metastases in the intestine and lungs, where the hematogenous and necrotic areas may simulate "spontaneous infection." Among ninety-eight of the author's personal cases, 39 per cent of the infections were cattle borne, 25 per cent were derived from animal skins and 36 per cent were of professional origin. There were some instances of infection from insects, flies, spiders and one instance of laboratory origin. Man to man infection was rare. The mortality is 15 per cent in Germany, 22 per cent in Italy, and 14 per cent in Russia. The author, having recourse to specific serotherapy, had been able to lower the death rate to 8 per cent. Localization of the focus of the infection is highly important to the prognosis of anthrax. In most of the author's cases the lesions were localized on the hands, face and neck, and the majority of deaths occurred in infections of the lips and cheeks. Eighty-one per cent of the infections were found among men, 52 per cent in the 20 to 40 age group, 25 per cent in the 40 to 60 age group. The author's bacteriologic observations were positive in only 33 per cent of the cases. He advises physicians, epidemiologists and laboratory workers to wear masks whenever they are in contact with anthrax infection and stresses the importance of research and further study.

Spleen and Active Immunity.—Shchedrovitsky and his co-workers began their study prompted by the many and discordant theories in regard to the relation of the spleen to the endocrine and reticulo-endothelial systems. With emphasis on antibody response, they studied the influence of splenectomy alone and in combination with endocrine gland extirpation. Splenectomized rabbits, after varying intervals of time, were castrated and thyroidectomized; other castrated and thyroidectomized rabbits were subsequently splenectomized. Agglutination titers were determined at intervals during typhoid immunization, begun directly and also two, four and six months after operation. Twenty-nine rabbits were studied; sixteen of these were splenectomized, six castrated, five thyroidectomized, and two controls laparotomized; nine rabbits were studied before operation. The observations were as follows: 1. Immunization directly after splenectomy resulted in an agglutinative titer of six to eight or nine thousand (normal control four to five thousand) during the first two to three months after the operation. Subsequently, there was a marked fall in titer similar to that in thyroidectomized and castrated animals in the first two to three months. 2. Thyroidectomy in splenectomized animals led to a fall in agglutinative titer. 3. Castration of splenectomized animals did not change the agglutinative titer. 4. Splenectomy in castrated animals increased markedly the antibody response. 5. Splenectomy was fatal to thyroidectomized animals. 6. The authors admit a close interrelationship between the spleen and the glands of internal secretion. They believe that the spleen has an internal secretion which is antagonistic to the secretion of the thyroid, the true intensifier of antibody response. Extirpation of the spleen, therefore, increased the thyroid function. Similarly the inhibiting influence of castration was probably also due to antagonism and when castration was followed by splenectomy the thyroid function could again be restored.

Spleen and Intermediary Metabolism — Seltser and Shchedrovitsky, after many experiments, draw the following conclusions: 1. Splenectomy in dogs leads to increased thyroid functioning. Thyroid functioning was determined by the Sternberg serum-atropine reaction. Serum of hyperthyroid patients neutralized the atropine and when instilled into the eye failed to give the proper dilatation. 2. Splenectomy increases the alkali reserve of the blood. 3. Splenectomy results in a lowered blood sugar level; the level remains low a long time following operation—an entire year in the authors' experiment. 4. The cholesterol content of the blood increases to high proportions during the second and third months after operation and then goes back to the preoperative level. 5. The calcium content of the blood increases after splenectomy. 6. The peripheral blood picture after splenectomy is changed to one of lymphocytosis. 7. Spleen fed to normal and splenectomized dogs decreases the blood calcium. 8. Spleen fed to normal dogs does not influence the blood cholesterol and blood sugar, but fed to splenectomized animals it increases the sugar and decreases the cholesterol, sometimes below the normal level. 9. The authors believe that the spleen produces a hormone similar to the other glands of internal secretion and that extirpation of the spleen influences the physical chemistry of the blood, resulting in marked organic body changes.

Finska Läkaresällskapets Handlingar, Helsingfors

73: 513-592 (July) 1931

*Chronic Pancreatitis, Particularly as Complication in Pathologic Conditions of Biliary Tract, in Duodenal and in Gastric Ulcers. R. Ehrström and G. Nylander.—p. 513.
Acute Disorders of Pancreas: Treatment. L. Peterson.—p. 534.
Is Accommodation of Significance in Plateau's Phenomenon? Erna Zitting.—p. 569.
Advances in Roentgen and Radium Therapy During Past Decade. G. A. Wetterstrand.—p. 577.

Chronic Pancreatitis.—Ehrström and Nylander report four cases representing different types of chronic pancreatitis, the first with steatorrhea and diabetes, the second with steatorrhea and ileocecal fistula, the third with jaundice and enlarged gallbladder (Courvoisier's symptom), and the fourth with steatorrhea and hyperinsulism, the primary condition in the first and fourth being gallstones, in the second and third duodenal ulcer. In their fifth case, with multiple gastric ulcers, the primary condition was cancer of the tail of the pancreas.

Hospitalstidende, Copenhagen

74: 781-792 (July 16) 1931

*Simmond's Disease (Hypophyseal Cachexia). O. J. Nielsen.—p. 781.
*Delayed Traumatic Disorders of Brain. E. Geert-Jørgensen.—p. 786.

Simmond's Disease.—Nielsen gives an historical review of this disease, discusses the etiology and pathogenesis, and reports three cases believed to be essential hypophyseal cachexia, in the third of which some benefit is being derived from treatment with hypophyseal preparations.

Delayed Traumatic Disorders of Brain. — In Geert-Jørgensen's four cases of organic disorders of the brain related to trauma experienced from nine to fifteen years earlier there is definite information as to trauma and clinical course, and the diagnosis has been verified at necropsy or on operation.

74: 823-834 (July 30) 1931

*Differential Diagnosis in Disorders of Liver and Biliary Tract. E. Polack.—p. 823.

Differential Diagnosis in Disorders of Liver and Biliary Tract.—The results of 195 galactose tests made by Polack in 135 patients, 97 with disorders of the liver and biliary tract and 40 control patients, confirm his earlier conclusion as to the supremacy of Bauer's test in differential diagnosis. It practically always gives positive results sometime during the course of acute parenchymatous hepatitis and negative results in pathologic conditions localized in the extrahepatic biliary tract. In icteric conditions the result separates medical and surgical forms. As a protracted biliary stasis can secondarily cause injury to the liver parenchyma, the author points to the importance of the timely galactose test in grave icteric conditions which present diagnostic difficulties. In judging the outcome of the test, one should attach greater importance to the galactose values in the urine than to the blood sugar values.

Ugeskrift for Læger, Copenhagen

93: 703-724 (July 2) 1931

Permanent Results of Treatment for Reduction of Weight. E. Faber.—p. 703.
*Intravenous Injections of Morphine. H. Iacobæus.—p. 707.
*Ovarian Hemorrhages with Symptoms Resembling Appendicitis. A. Als-Nielsen.—p. 710.
Typhoid Epidemic in Institution. F. Ingerslev.—p. 716.

Intravenous Injection of Morphine.—In illustration of the rapid and powerful effect of the intravenous administration of morphine in palliative therapy in cases with excessively violent and constant pain, Iacobæus reports two more cases of inoperable cancer in which this method was used. Nine cases have been previously reported by him.

Ovarian Hemorrhages with Symptoms Resembling Appendicitis.—Als-Nielsen describes ten appendicitis-like cases of pathologic ovarian hemorrhage observed during three years, three from rupture of a corpus luteum, one probably due to ordinary rupture of a graafian follicle with abnormal bleeding, and six to rupture of a follicular cyst. Degeneration with small cysts was found in five cases. In all but two cases the symptoms were characterized by sudden, violent and quickly subsiding pain in the abdomen. The author states that in all of the more than fifty cases of ovarian hemorrhage reported an operation was performed under an erroneous diagnosis. The cases presenting profuse hemorrhages were diagnosed as extra-uterine pregnancy, the others as appendicitis or salpingitis. In cases of solitary cysts resection of the ovary seems to him the natural treatment; in degeneration with small cysts the treatment has usually been limited to cauterization of the ruptured cyst with ignipuncture of the remaining cysts.

93: 747-770 (July 16) 1931

*Bacteriologic Examinations in Pneumonia and Septicemia. E. Schiødt.—p. 747.
*Significance of Water Metabolism in Epileptic Attacks. S. Teglbjærg.—p. 754.
*Bromsulphalein Applied in Liver Function Test in Surgical Material. H. K. Lassen.—p. 759.
Measurement of Temperature and Diagnosis of Activity of Tuberculosis in Children. R. Kjer-Petersen.—p. 761.
Threshold Value of Stethoscope. A. Saugman.—p. 762.

Bacteriologic Examinations in Pneumonia and Septicemia.—Out of 87 patients with pneumonia, Schiødt found bacteria in the blood in 13 (15 per cent); of 8 with growth of streptococci, 5 died and of the 5 with growth of pneumococci, 2 died, the total mortality being 54 per cent. Of the 74 patients without growth of bacteria in the blood or with growth of staphylococci (7), 17 died (mortality of 26 per cent). Growth of bacteria from the pleural cavity occurred in 35 cases, 15 with streptococci (10 fatal), 19 with pneumococci (6 fatal), 1 with paratyphoid bacilli (fatal). Culture of the blood in 19 cases with septicemia gave negative results in 7 cases (3 fatal), positive in 12 (10 fatal). Cultures from the sputum from 47 patients with pneumonia showed streptococci in 29 (8 died), pneumococci in 17 (2 died). The entrance of bacteria into the blood stream or the pleural cavity is therefore of grave prognostic significance, with streptococci giving a poorer prognosis than pneumococci.

Significance of Water Metabolism in Epileptic Attacks.—In nineteen epileptic adults without gross neurologic changes in the central nervous system, Teglbjærg found that the ingestion of 2 liters of water daily produced a marked increase in the number of attacks, while limitation of the liquid intake to about 600 cc. daily caused a pronounced decrease in the number.

Bromsulphalein Applied in Liver Function Test in Surgical Material.—According to Lassen's experience the retention of bromsulphalein in the blood affords a close indication of the degree of disease of the liver, so that the development of the disease in one direction or the other can be followed. In only a few cases has the test allowed differential diagnosis. In the majority of cases Rosenthal's test seems to be more sensitive than are determinations of the urobilin and icterus index, but the author believes that the values found in patients with icterus due to stasis should be regarded with some reservation, as the retention of bromsulphalein in the blood is probably partly due to injury of the liver parenchyma itself or at all events injury of the cells by which this substance is eliminated, and partly to the bile stasis.